





The New York Association for the Blind has played a pioneering role in the field of low vision. It set up the first ophthalmologically directed low vision clinic in the country in 1953 and for some years conducted an intensive educational program to encourage ophthalmologists and optometrists to become more aware of what can be done to assist their patients with subnormal vision. It has helped establish low vision clinics throughout the U.S. It has trained ophthalmologists and optometrists from all over the world and has worked with specialists on the development of lenses. In 1976 it established a Low Vision Training and Continuing Education Center, the first formal training program for low vision personnel.

This 25th Anniversary Low Vision Symposium is part of NYAB's continuing effort to educate practitioners in both the ophthalmological and optometric fields to assist more effectively their patients with low vision.



THE LIGHTHOUSE LOW VISION SERVICE

*The New York Association for the Blind
111 E. 59th St., New York, N.Y. 10022
212-355-2200*

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Introduction

In the fall of 1953 the New York Lighthouse Low Vision Service started to prescribe optical devices for partially sighted people and to train professionals in Low Vision Case Management.

Over the past 25 years the nature of the problems and services to low vision patients has changed.

Problems of Today

- The patient's examination, prescription and instruction are too time consuming
- There are not enough trained clinicians and assistants throughout the country
- There are too many optical aids and too few standards
- Low vision patients need tests standardized for their unique vision problems
- Complete low vision care is not the prerogative of only one discipline

The Symposium will address some of these problems, and will demonstrate the importance of the active participation of various disciplines in low vision clinical work.

We hope thus to provide a new look at an old subject and to present an unusual mix of ideas and people.

Ophthalmology

CME Category 1 Accreditation — 15 hours

As an organization accredited for Continuing Medical Education, the Manhattan Eye, Ear and Throat Hospital certifies that this Continuing Medical Education offering meets the criteria for 15 hours in Category 1 of the Physician's Recognition Award of the American Medical Association, provided it is used and completed as designed.

Optometry

COE Category 1 Accreditation — 15 hours

This offering has been approved for 15 hours of Category 1 credit by the American Optometric Association Commission on Continuing Optometric Education. This program has also been approved for 15 hours of Continuing Optometric Education credit by the following state boards of examiners in optometry: Florida, Indiana, Iowa, Kentucky, Massachusetts, Michigan, Minnesota, Montana, Nevada, New Jersey, North Carolina, Ohio, Rhode Island. All states have been contacted with regard to COE credit. Information on states not listed above will be available at the Symposium.

Continuing Education credits for workshop sessions will be given hour for hour.

This binder contains copies or outlines of most of the papers to be presented at the Symposium. It is designed as a workbook to enable participants to get the maximum advantage from their attendance at lectures and workshop sessions.

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Thursday, November 9

New York Hilton

PROBLEMS OF TODAY

7:30-8:50 a.m.

Registration

West Ballroom

Coffee and Danish

9:00-9:30 a.m.

The Changing Scene in Low Vision

West Ballroom

Wesley D. Sprague, M.S.

Executive Director

The Lighthouse

The New York Association for the Blind

9:30-11:30 a.m.

Aspects of Comprehensive Low Vision

Case Management

West Ballroom

A low vision examination procedure for adults and children will be presented showing the relationship of pathology and tasks to the prescription of aids.

Eleanor E. Faye, M.D.

Director

New York Lighthouse Low Vision Service

Judith E. Gurland, M.D.

Pediatric Low Vision Clinician

New York Lighthouse Low Vision Service

Bruce P. Rosenthal, O.D.

Consultant

Training and Continuing Education

New York Lighthouse Low Vision Service

11:30-12:30 p.m.

Lunch

Tranon Ballroom

WESLEY D. SPRAGUE, M.S.

Executive Director
The New York Association for the Blind

PROBLEMS OF TODAY: The Changing Scene In Low Vision

The art of low vision is over 25 years old. Much empirical work has been done and numerical statistics have been kept, but now that more people are working in the field of low vision, and there is greater sophistication in our field, we are beginning to recognize the importance of our work and acknowledge our need for more valid data, techniques, systems, aids and education.

I welcome all of you to our Symposium and I recognize that you are concerned people seeking input by which we can individually and collectively meet the needs of fellow citizens who have low vision.

You might be interested to know that, at last count, pre-registration for this symposium stood at _____, which was comprised of _____ M.D.'s, _____ O.D.'s, and _____ staff associated with low vision clinics and agencies serving blind and visually impaired persons. _____% come from private, nonprofit agencies, _____% from the public sector, _____% from private practices, _____% from hospitals, and the remaining _____% are optometry students and residents in training. You can see, then, that there is diversified interest in this new field of service, low vision.

There has been a dramatic rise in the number of low vision patients over the past 25 years. This undoubtedly occurs as a natural spinoff of the great increase in the number of older citizens in this country, from the desire of most consumers to avail themselves of the latest technology in eye and health care. Advances in the medical field have also contributed to this increase by developing improved medical treatments and surgical techniques.

To translate these trends into numbers, consider the fact that during the last fiscal year, the Lighthouse low vision clinic alone saw 1,600 patients, 941 of whom were new cases. 81.3% of these new cases were over the age of 60. (In the last 25 years we have seen 18,000 patients.)

It is estimated that in the U.S. there are 10 million individuals with partial vision, 500,000 to 1,000,000 of whom are legally blind. To date, this population is being served by some 250 low vision clinics and a relatively small number of private practitioners.

Clearly, the demand is there and it is up to us as concerned professionals to provide for these patients in the best manner possible.

Thus the reason why we are here today is to focus on the low vision problems of today and the challenges we face tomorrow.

The purpose of this symposium is to present professional people with a clear or insight into the techniques of clinical management of the low vision patient. It is evident that most attending today have had some basic experience in caring for low vision patients, have done some reading about the subject, and may even have had some success (and a few failures) in caring for patients with low vision problems. During the next three days this meeting will address itself to: the major eye problems resulting in reduced vision, the low vision management of the patient with glaucoma, diabetes, macular degeneration and the specific low vision problems of children. We will also demonstrate the cooperation needed among all disciplines serving low vision patients.

Low Vision is, or should be, a meeting ground for ophthalmologists and optometrists. For some it is still a controversial issue - for others an irrevocable fact of life - if one is truly to meet the needs of and render meaningful care to the low vision patient. To many who have been practicing low vision for some time, it is the ideal combination whereby varied talents and experiences can be molded for the good of the low vision patient.

Progress in any area is based on controversy, and low vision as we know it today is in a state of change with many questions still unanswered. Where is the best place to render care? What should the fee for services be, partial or complete cost, or cost plus?

- Who is going to pay for this care, these examinations, counseling, aids, and follow-up services? Last year the low vision clinic of our agency cost \$185,000, only \$6,500 was recovered from patients, \$20,000 from third party government services, thus leaving us with \$168,500 to be underwritten by public and other financial resources available to the agency for operating expense. Equipping and establishing a low vision service requires an outlay of \$30-50,000. Few nonprofit agencies can afford the expense of a low vision service notwithstanding the prime need for such.
- Should the government, in its national health care insurance program, underwrite all, partial, or none, of the services and aids that are involved in the great number of people with visual problems in this country?

- What formula, then, must be developed whereby the public and the private sectors could share in the expensive costs involved in low vision care?

Or can costs be reduced by streamlining the examination procedure? Hopefully, clinical problems such as these can be solved via a research environment. Many unknowns must be addressed. For example, we realize now that the replacement or substitution of visual function is more complex than we recognized some time ago, and that there are many physiological factors in eye diseases that interfere with the improvement of that function. We also recognize that the tests we use today are not giving us the information we need about the disruption of the physiological function of the damaged eye. Take, for example, the simple matter of testing visual acuity. We would like to say that the current tests for people with normal vision are adequate, but they are not. There are no standards for letters, for lighting, for contrast, nor do we know what significance visual acuity testing really has. Take another example. In color vision, does an Ishihara test tell us anything about the way a patient functions who has had retinal or optic nerve pathology? Is color confusion the same as a color deficit due to damage of a formerly normal cell? What we need to do is to carry out research under laboratory conditions which will give us better understanding of the effect of disease on function and to apply this to the design and proper use of low vision aids. We concerned with low vision must try to find the common denominator in care that may be transmitted as a body of knowledge to others. Continuing education will play a vital role in the progress of low vision.

All this boils down to the need for a new look at where we are, who is to do the work, how the work is to be performed, where funding can be obtained, where services should be given, and how we all can speed up, yet validate, diagnose, treat, and provide meaningful care for the better use by people of their remaining limited vision. The speakers and workshops comprising this symposium will address these questions. The specifics of this symposium, topics, meeting rooms, speakers, luncheon and cocktail arrangements, and workshops are detailed in your program. Anyone requiring documentation of attendance should stop at the Continuing Education booth to pick up a certificate of attendance. The booth will be open all day Friday at the Lighthouse and Saturday from 8 - 8:45 A.M. here at the hotel. If you have other questions, please feel free to ask anyone with a "staff" badge so that they might expedite answers for you.



To further set the stage for the symposium, it is my privilege and honor to now introduce Dr. Eleanor E. Faye, Medical Director of the New York Lighthouse Low Vision Services, whose work and dedication to the field of low vision need no amplification by me. Dr. Faye.

Wesley D. Sprague, M.S.
Executive Director
The Lighthouse
The New York Association for the Blind

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ELEANOR E. FAYE, M.D., F.A.C.S.

Ophthalmological Director
New York Lighthouse Low Vision Service

Chairman
Committee on Low Vision
American Academy of Ophthalmology

Attending Surgeon
Manhattan Eye, Ear and Throat Hospital
New York

JUDITH E. GURLAND, M.D.,

Pediatric Low Vision Clinician
New York Lighthouse Low Vision Service

Assistant Professor
Division of Ophthalmology
State University of New York
Downstate Medical Center
Brooklyn, N. Y.

BRUCE P. ROSENTHAL, O.D., F.A.A.O.

Consultant and Instructor
Training and Continuing Education
New York Lighthouse Low Vision Service

Assistant Clinical Professor
State University of New York
College of Optometry



The Relationship of Eye Pathology to Case Management

DEFINITION:

Our first assumption in working with low vision patients is that there is a disorder in the visual system, either in the globe or nerve pathways; and our second assumption is that this disorder disturbs the customary function of the person - he doesn't do as well in his daily life because of his impaired visual function.

My concern today is the relationship between the diagnosis and function of the individual with low vision and to show you how the diagnosis influences the way a case is managed.

Function vs Diagnosis

First, the concept of function vs our usual orientation of diagnosis, diagnostic tests and data gathering and treatment of a disorder.

When we take care of a person with a permanently impaired visual system, we are dealing with reduced organ function. This reduced function can obviously be quantitated with various tests.

Obviously, the visual acuity is a prime example of a method we use to quantitate the degree of loss. The visual field is another diagnostic test we use to assure an accurate diagnosis and location of the site of the pathology. We study binocular function, color vision, and we might have access to more complex physiological tests to assess night vision and dark adaptation time.

Often we collect data and it stays in the chart, never becoming part of our management of the patient who, in the meantime, is trying to live his life in this context of "what happens to a person's function as a consequence of these findings we so conscientiously record."

These same tests in low vision cases assume another dimension. For example, the diagnosis also tells us to look for certain characteristics and behavior.

Visual acuity tests enable us to select the proper amount of magnification for distance, intermediate or near tasks.



Field tests tell us what to expect in a person's mobility, and ability to use reading aids and telescopes.

Color vision tests help us to analyze cues a patient can use in daily life related to color perception.

Binocular function and light tolerance evaluation help us to understand more about how the patient is going to get around independently - in other words furnish cues for mobility. The history tells us what the patient needs and expects from us to solve the task-oriented problems.

What I'm saying is that in low vision work, we have to go beyond the concrete information furnished by tests... and use all of the information we collect to relate to FUNCTION. Only then are we doing a complete low vision examination and rendering low vision care.

Neither optometry nor ophthalmology has been particularly trained to use data in this fashion although both groups criticize the time consuming aspect of doing low vision work, saying "Isn't it really rehabilitation and doesn't it belong under the sheltering roof of a rehabilitation agency?"

I think that complete low vision care belongs wherever service can be delivered, and whether we do it ourselves in an office, or only do part and delegate training aspects of care or refer for the other services makes little difference as long as the patient gets the necessary care.

Today, I am talking about the eye pathology--how the diagnosis affects function. We will consider the effect of the eye diagnosis, the visual acuity and the visual field in various conditions but since the visual acuity is not typical for any one condition, I will discuss the diseases in a format that classifies the conditions according to the pattern of field defect. It is easier to see what each condition has in common this way, rather than simply discuss the common eye conditions in alphabetical order.

Almost all of the common eye conditions can be classified in this way.

We will consider those diseases that have NO field defect on gross test... those that have central field defects... and finally those that have peripheral field defects.



Let's start with the first group: no field defect. In this category, there are 3 subgroups:

1. the refractive media cornea, lens and vitreous
2. the pupil and its mechanical effect on light transmission
3. the macula in specific cases of maldevelopment or malfunction where there is reduced macular function, but no scotoma on gross tests.

Refractive Media

The largest and most important group of diseases involves the cornea, lens and vitreous.

Let's get into the functional aspect of vision right away and look at this slide which depicts the type of vision the patient might experience with a media opacity; it is hazy, blurred and glary throughout most of the field and may affect the entire field.

The visual acuity in these cases may range anywhere along the scale from near-normal to near-blind, and function here is often directly related to the level of visual acuity. So vision tests mean something here if you relate them to function both indoors and out which means that you consider the possibility that there will be a discrepancy.

Briefly here are some examples of the more common conditions: There are many variations of course, but we needn't list them all because the point is that they all have common characteristics in type of vision and case management.

First are examples of corneal disease:

scarring from an inflammatory condition
congenital dystrophy and microcornea
keratoconus with a positive Munson's sign

Next examples of cataract:

congenital posterior opacity
congenital nuclear and congenital zonular
a mixed posterior and cortical cataract
a senile nuclear cataract

In examples of vitreous disease, we have
bleeding from any cause, commonly from diabetes
turbidity from uveitis with membrane formation including
retinal bands

Function

Now, let's look at the function of these people, starting with
indoors:

Most people indoors will have less trouble in familiar surroundings
than outdoors. Objects will appear hazy, but depending on the
acuity and favorable lighting, they can see throughout the
fields.

Most problems are related to lighting--too much or too little--
so this has to be regulated to suit the person and placed at
the correct angle not to cause glare and the correct distance
from the object that is being viewed.

Contrast is a problem. This is solved by having the person
use contrasting colors with plates and food, or work spaces so
that dark objects show up clearly against a light background
or vice versa--that furniture shows up against wall paper,
rugs and so forth. This can be discussed with other family
members so they understand the problem.

Outdoors

This is an entirely different situation and a primary problem
for this group with media opacities.

Light, illumination and glare are an ever present threat
because there are so many uncontrollable variables, like
street lighting, time of year, time of day and weather.

Visual acuity, which may test close to normal in indoor test
situations, may be reduced to near-blindness by glare. Patients
who function well indoors may say that they are "blind" outside.
What is the management?

First is light modification or control; you would think first
of

1. sunglasses--various transmissions in neutral gray,
NoIR, or polaroid, or yellow filters; the selection
is subjective.
2. visors or hats to shade the eyes.



Let's list the problems

reduction of acuity outdoors
variability
veiling glare
lack of contrast

What remains intact?

the visual field
object perception
depth perception if two eyes
color vision (reduced intensity)

In summary, in conditions of the refractive media....you have conditions that are all potentially correctable by surgery whether grafts of the cornea, implants of the cornea and lens, cataract extraction and vitrectomy. However not all people can have surgery, and not all surgery is successful in restoring functional visual acuity.

We must consider the following in our treatment plan:

1. Control or modification of light
2. Careful refraction and corrective lenses or contacts
3. Low vision aids may be less useful than contrast or large print or better lighting. Magnification may reduce vision unless illumination controls are also used.

The second subgroup of no field loss also affects the transmission of light to the retina. It is the mechanical effect of the pupil.

Here, we are dealing (briefly) with a mechanical situation that cannot always be changed, but may, in some cases, be avoided if you think of it. There may be too much, or too little light to the retina.

Of the Congenital conditions, there is

aniridia--watch for cataracts and glaucoma if vision falls since this is basically a stable condition.

coloboma--think of a laminated contact lens if there is photophobia.

corectopia--leave it alone.

Surgically, iridectomy

peripheral--we watch out for too large an iridectomy and diplopia

sector--observe lid for size for lid aperture. We try to do a keyhole and cut as little sphincter as possible.



huge sector-patients are very photophobic. We try to avoid this type of iridectomy.

Medication affects function in this way:

miotics--often the side effects of miosis turn the patient with a normal retina into a low vision patient. High intensity illumination often helps, as does the typoscope for masking glare but we must remember that side effects like this affect patient cooperation and may account for non-cooperation and eventual loss of field and visual acuity. Medicines should be changed and/or discussion. New drugs, Timolol Clonidine.

The third subgroup consists of diseases that affect the macula.

WITHOUT SCOTOMA--usually maldevelopment or malfunction of some type.

Examples are:

1. the undeveloped macula of the albino and person with aniridia.
2. the achromat with malfunction of cone pigment.
3. the amblyopic macula from suppression or sensory deprivation as in strabismus, congenital cataract with aphakia, uncorrected, high refractive errors.
4. the high myope with a posterior staphyloma.
5. the diabetic with macular edema but no scotoma.

I am going to discuss the management of the albino, the achromat and the amblyope separately.

Here first is a general idea of the kind of vision we might anticipate. The peripheral vision is essentially normal, but the macula does not fully resolve the central objects of regard--to us it looks blurred, but to the affected person, their only comment is that they have to get closer to see things clearly, much as we do when we cannot see what's playing at the movies 3 blocks away, and walk closer to resolve the letters with our maculas. There certainly is no scotoma, and no overall haze.

Let's first discuss the albino, one of the largest number of people you will see in this category. Albinism may be inherited as a dominant recessive or sex linked.



First, you must determine what type of albino you are dealing with. Transillumination, the technique shown here, will help you decide whether you are dealing with a

Tyrosinase-negative albino or complete with no pigmentation.

A fundus devoid of pigment with complete iris transillumination.

Visual acuity is generally poorer than incomplete 20/200 and they may be more photophobic.

A Tyrosinase-positive albino with some skin pigment, shown in the lower left corner of this slide.

With pigment visible on transillumination and in the fundus the visual acuity may be 20/200 or better.

An ocular albino with normal skin, hair and eye color who has nystagmus, moderately reduced visual acuity such as 20/70, 20/80. All albinos have refractive errors and iris transillumination.

Function

Indoors, we don't have to consider any functional difficulties specifically so let's consider general management of the albino.

Not all albinos are light sensitive. It depends on the amount of pigment they have, whether Ty-negative or Ty-positive. They might like a mild tint, or moderate tint depending on subjective evaluation and preference.

The most important fact about albinos is their refractive errors. Almost all have high refractive errors with astigmatic component. They are very aware of axis and power, and if you place the Snellen Chart 3 feet away, it is possible to do a very accurate subjective including cross-cylinder without having to resort to the time consuming telescopic refraction.

They often like telescopes, particularly patients in the better acuity ranges, which most of them are, because with this type of magnification, their function is normal, as is the case with this school child. I believe that children should be fitted very young to stimulate visual efficiency with devices and get away from the idea that there is a stigma attached to lenses.



Next, I would like to discuss the person with achromatopsia, or complete color blindness.

The Achromat

I mention this interesting cone disease because it is often overlooked as it was in this child.

The symptoms are of extreme light sensitivity bordering on the pathological. Children are often thought to be antisocial or behavior problems because they sit in a corner in school, refuse to go outside for recess, keep their eyes shut.

Ask how they function at night. They are happiest in the dark with their rod systems. This child is immediately cast-down when you take his glasses off.

Treatment

The treatment is absorptive lenses as dense as they can tolerate--1-2% transmission, often welding goggles cutting out all extraneous light.

Amblyopia

I mention this specifically because I think vision specialists must emphasize to parents the importance of visual training in the young strabismus case. I have seen far too many patients in their later years when their good eye lost vision, and their amblyopic eye became a poor substitute. This includes thinking about timing of congenital cataract surgery--unless we plan to do both eyes or correct immediately, the risk of amblyopia is too high in a monocular case.

Myopia should be refracted carefully, as increasing myopia is often overlooked. Before you prescribe a stronger lens, apply Fresnel minus lenses to their own correction to see if they can tolerate it. The results may surprise you.

Edema of the macula particularly secondary to diabetes may be improved by laser application to the peripheral retina--however this is a matter of preference, belief and experience of the retinal specialists. I find that patients do not respond as well to magnification once the peripheral retina has been treated.



What about their function?

Indoors - They usually have no difficulty doing tasks that do not require very detailed vision. They sit close to the TV; they arrange objects in their houses for contrast. There are many accessory, or non-optical aids that help with household tasks.

Outdoors - Travel ability is excellent unless central scotoma exceeds 20° . The central visual acuity may be reduced because of a scotoma, but the peripheral photoreceptors are still there to provide measurable visual acuity that is serviceable. Most people learn to view eccentrically and substitute another paramacular area for their defective macula. Patients, at the time of their visual acuity test, can be taught to scan or view eccentrically, thus converting the chart test to a functional learning experience.

A refraction should not be neglected just because the macular element are disturbed. The image quality can be appreciated by the peripheral retina even though the cone density is decreased.

Consider that an average scotoma is only 5 to 10° out of the entire field of 180° binocularly (140° monocularly).

Patients also use telescopes and binoculars effectively if they want them for specific tasks, though they tend to prefer their own peripheral vision for traveling.

Reading difficulty is a major complaint because here... the scotoma blocks relatively more area than for distance in a more critical type of visual activity. Fine details of letters and words are blocked out as the eye moves along a line of print.

Treatment

Magnification with optical aids is effective in central scotomas because when the patient brings the print closer, the scotoma becomes relatively smaller, as you see in this picture where now only part of the letter is disturbed.

Basically any type of aid can be used of the major types of aids, depending on the task requirement, the motivation and intellectual capacity of patient and on the experience and preference of the examiner.



Summary

As you can see in this rather varied group there are many conditions, but the visual function is affected in much the same way--

lighting and contrast affect this whole group very much
refraction is basic
control of light is basic
high magnification is not always needed but is basic to try in all low vision cases.

Central Field Loss

This is quite a straightforward group covering every age group because any type of posterior pole disease would come under this heading including:

1. Atrophic degenerative macular lesions
2. Hemorrhagic macular lesions
3. Congenital macular degenerations
4. Inflammatory diseases such as toxo and histo
5. Traumatic chorioretinitis.
6. Cystic disease of the macula or macular hole
7. Pathological myopia with Fuch's spot.

Typical of this group is demonstrable pathology when you look in and a scotoma when the patient looks out.

Vision

At the Lighthouse, 75% of our cases are in this category and those figures are duplicated elsewhere except at rehabilitation oriented clinics.

Functionally, we might expect something like this picture. However, I would like to point out that scotomas are not always uniformly dense. They may vary from slight distortion and blur to total central field loss. Most people maintain a lot of functional cells within the macula as a rule. Visual acuity may range from 20/40 to a peak of 20/200 and be as poor as 3/200 depending on the severity of the case.



Measurement and Importance of Scotoma Measurement

A word here about the measurement of central scotomas with the #1 plate of the Amsler grid. The grid as you know is used diagnostically, but I have shown that it can also be used prognostically, to determine the position and density of scotomas. This allows us to predict how much interference to expect from the defect. It also allows us to teach the patient where the scotoma is, and hopefully to learn to move it away from center.

Do not use the plate with localizing crossing lines for this test because you do not want the patient to be told where to look.

Instructions

Ask the patient to look at the grid and describe it. Do not tell them what to expect. If they don't respond, ask them if they see a white dot in the center, or a checkerboard. If they see the central fixation point, it means that the scotoma is either faint, or eccentric to fixation. Here she sees the scotoma above and to the left of fixation. Once they locate the scotoma, then ask them to look directly at the fixation point. They may then say it covers the spot so you know that they have learned to use eccentric viewing area. The prognosis for magnification is excellent in these cases.

If the scotoma, as in this next case, covers the whole central area you have a defect of about 15° and the prognosis or response to magnification is guarded... You know that you are going to need over 30 diopters.

The Amsler grid can save you a lot of time.

Let's relate it to pathology:

As a rule, the macular degenerations that are atrophic such as shown in this slide, have the best prognosis.

Here is the grid of this patient showing an eccentric scotoma above and to the right. This patient reads with a +14.00 add and a +20 hand magnifier, and uses a Bioptic 2.2X full field telescope for music.

Here is another type of case with a good prognosis, a patient with a macular cyst; here is the fluorescein angiogram which outlines the cystic area beautifully.



The Amsler grid showed only compression of the central squares and some distortion. She read with a +6 add with 8D prism base-in.

Here is the type of case that has a less favorable prognosis-the macular degeneration with hemorrhage that cleared leaving dense scarring.

Here is a case where neovascularization has developed. The fluorescein shows this typically dense lesion in the macula; the Amsler a dense central scotoma, visual acuity 20/200.

Another unfavorable condition is circinate retinopathy shown here with a typical fluorescein picture. This condition indicates profound retinal anoxia and a poor prognosis for appreciation of magnification.

One more point about scotomas-look at each eye to see what area is occupied and project the lesion and its scotoma onto the reading page. For example, this atrophic lesion in the left eye is projected to the left when reading and there is little interference. However, if the same type of lesion is in the right eye, the projection will be to the right and will interfere more with reading.

Never make the mistake of telling patients with macular disease they will never be blind. It may not be true, so know what to expect.

Management

1. Medically laser treatment has been used but less and less. Here is an example of a macula treated with one laser application seen as a white soft area-her vision was 20/200, improved to 20/50 soon after treatment, but she went on to a rapid subretinal neovascularization and 4 months later had visual acuity poorer than 20/200, and could not respond well to magnification.

Lighting is important. Placement should be near the page but not reflecting from the page into the eye.

Flip-Up Polaroid glasses are used a lot, as well as simple masking devices like the typoscope.



Optical aids are prescribed according to the visual acuity and needs of the patient and include:

| | |
|---------------------------|---------------------------|
| spectacles | here shown in use |
| hand and stand magnifiers | here in use HM a stand |
| telescopes | here a full diameter WATS |
| | Biopic for music |

*aids are task specific not age specific

Summary

In dealing with the patient with a central scotoma, management depends on the mental condition of the person, the visual acuity as affected by the size and location of the scotoma, and the motivation of the person.

If motivation and intelligence are normal to high as they are in this elderly patient, you cannot fail to prescribe something that works. Basically, the intact person with this type of field defect functions nearly normally, provided the scotoma doesn't cover the posterior pole as it sometimes does.

Peripheral Field Defect

Now we go on to the last group, the one that is the most difficult to manage---the Peripheral Field Defect.

Field loss in the periphery has the most impact on visual function of any of the conditions we have considered so far because it is the peripheral retina that provides all of the cues for action---it is the "where" part of the retina as opposed to the "what is it" of the macula.

Here we are considering retinal pigmentary degenerations such as retinitis pigmentosa and allied degenerations like Stargardts disease; optic atrophy of glaucoma, neurological disease, head trauma; cerebral vascular disease such as stroke, localized vascular problems, ischemic optic atrophy and retinal vessel occlusion shown here; toxicity to drugs may also cause peripheral field constriction. Detached retinas are another common cause, retrolental fibroplasia, proliferative diabetic retina is one of the hardest types of cases to work with.

Here are 4 views of types of defects.

1. Arcuate-these are not so serious because of their location.
2. Perimacular.



3. Hemianopias of varying locations--this one happens to be inferior and this one, right which interferes with reading.

4. Constriction of the peripheral field typical of R. P. and glaucoma.

Any sector defect is less serious unless there is specific interference with a task. Constricting diseases like R. P. and glaucoma and diseases that fluctuate like diabetes are the worst to manage in terms of improving visual function, and this discussion will be confined to those conditions that permanently constrict visual field to a central (or eccentric area) of 20° or less; or reduce peripheral acuity; keeping in mind that the smaller the remaining central field becomes, the more difficulty the patient experiences.

The visual acuity often remains normal if macular function is undisturbed, but blurred vision may indicate not just disease in the macula but an uncorrected refractive error so don't assume anything, refract.

FUNCTION

Indoors and Outdoors--Almost all people with large peripheral field defects have difficulty in walking around independently. These defects are absolute. There is no in-coming information about motion, contrast, spatial cues or objects in the environment, a picture of a field of 5° shows the difficulty of being aware of the surroundings without scanning.

Reading

The reading field is also reduced, even more than the distance field since the field is cone shaped with the apex towards the eye. The closer you bring reading material, the smaller the area--reading rate slows down even if there is normal acuity, as you can see on the right.

The Amsler grid may also be used in conditions of constricted fields to measure the number of degrees remaining.

The use of magnifying optical aids is restricted by the size of the patient's central field related to the strength and the field of the aid. If too much magnification is prescribed, the reading material has to be held close in the smaller field. The enlarged symbols may go outside of the field area and detail is lost at any rate.



The field of the aid can also be plotted on the grid so that the two may be matched.

Useful aids are hand magnifiers or stand magnifiers because objects can be held farther from the eye and adjusted by the patient for minimal effective magnification in the field--and CCTV which makes scanning easier although the magnification factor remains in the same ratio.

We must keep in mind also that there may be systemic complications and cerebral complications that make adjustment to aids even more difficult than it is--I'm referring to stroke and trauma patients as well as patients whose behavior is altered by their disease state in particular.

Field expansion

We have tried to reverse telescopic systems to compress more information into the available field, but to date none of the Lighthouse patients has been able to adapt to our devices.

Fresnel prisms have been used in hemianopia to "increase" the amount of field seen on the blind side--the results are questionable because of the line scotoma and the ease with which patients can scan or turn their heads without special aids.

Summary

Patients with peripheral field constriction are difficult to manage in terms of their function and improving their visual function.

The peripheral field offers cues to one's surroundings and tells the macula where to look. If only the macula is functional, it has no stimulus to keep scanning unless the person has a keen sense of visual perception and good visual memory.

The success of optical aids, particularly high magnifying spectacles and telescopes, is guarded because magnified images disappear into the scotoma. It is, therefore, important to measure the size of the scotoma (in inches or feet) when determining the relationship of the field to function--and when determining what aid will work and to know the size of the field of the aid.



Light control is important, as is a good refraction. Minification of the field while theoretically a good idea, hasn't worked particularly and awaits the invention of a better wide angle lens.

Mobility and other rehabilitation services may be needed or referral to special agencies for the visually impaired or to private mobility teachers.

This concludes my presentation of the general relationship of eye pathology to visual function.

Eleanor E. Faye, M.D.
Director
New York Lighthouse Low Vision Service

10/18/78
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Optical Correction for Low Vision Patients

Although there are hundreds of optical aids that are used to correct the reduced visual acuity of the low vision patient, and to enhance reduced visual efficiency, there are only four general categories of aids: those that use convex lenses, those that use a telescopic system, those that use an electronic system to relay an enlarged image and finally, those that increase visual function without the use of optical lenses.

The choice of the correct lens involves the use of the visual acuity as a basis for the amount of magnification needed by the patient; the use of the history as a vehicle to determine the tasks that the patient wishes to be able to perform; the technical knowledge of the available aids and an understanding of the advantages and disadvantages of each type; a knowledge of the diagnosis and the part played in the prescription of aids by the pathology, particularly the location and density of scotomas.

Convex lenses are most commonly used in the correction of low vision. It should be understood that the use of magnification inherent in the correct application of a convex lens does not result in "normal" reading vision. The patient must adapt to several new experiences: a closer than normal reading distance determined by the focal distance of the lens; a slower reading speed related to a different tracking technique; a smaller field of vision related to the reduced field of the lens itself, and the fact that the field decreases as the power of the lens increases. All of these problems are related to lens design, that is, the limitations of the single convex lens in dioptric power, focal length and field of view.

There are three ways in which a convex lens may be used, each depending on the way in which the lens is mounted; a spectacle lens (or a lens in the spectacle plane such as a headborne loupe); a hand-held lens; a stand mounted lens. Each type of lens mounting produces a characteristic pattern of usage.

The spectacle lens is easy to prescribe, readily obtainable and well tolerated by the patient as a rule, particularly in the lower powers. The advantages of a spectacle lens are that material may be held with both hands, the field is wider than the same power used as either a hand or stand magnifier. The disadvantage is principally that reading distance is fixed and may be only an inch or two in the higher powers. This reduces tracking speed and many patients have insufficient reading speed to warrant the use of high magnification in this form.



There are a variety of ways to prescribe a spectacle: as a plain or aspheric sphere (in a full or half-eye frame); as a bifocal (one-piece or as an insert doublet, or as a single small lens that can be glued to the carrier lens in a special sleeve); as a single unit doublet, particularly effective in the higher powers. The type of lens prescribed is related to the sophistication of the task to be performed by the patient, to the previous type of lens worn by the patient, and to some extent by cost factors and availability.

In general, spheres are adequate and most easily available in all areas of the country. Bifocals in high powers are special order lenses as are doublets. However, the optical quality of these lenses is generally superior to spheres and should be used if the patient's eye condition requires maximum contrast and clarity of the image.

The hand-held magnifier is a useful lens for the average patient, although the clinician tends to think of the hand magnifier as a less glamorous aid compared to a doublet or a telescope. Nevertheless, patient usage indicates high acceptance for tasks that involve not only reading but short term viewing of objects. Hand magnifiers should be prescribed in addition to spectacles, enabling the patient to cover a greater variety of visual tasks.

The advantages of a hand held lens are ease of use, convenience for short term usage, and a greater working range than a comparable spectacle lens. In addition to the distance of the lens from the object, there is the eye to lens distance which is always greater than a spectacle unless the patient chooses to hold the hand magnifier in the spectacle plane (which many of them do so that it becomes optically like a spectacle while retaining the advantages of a quickly available hand magnifier). Patients who are accustomed to using a magnifier may wish to continue the same type of lens in higher powers if their condition worsens. Once the technique of hand scanning is developed, the objection to a smaller field and the use of two hands in two different maneuvers seems to vanish.

A hand lens is useful for training purposes, to accustom patients to the use of a high plus lens that they can control more easily than a spectacle. They can be taught to hold it in the spectacle plane which eases the transition to spectacle technique.

The hand lens may be the lens of choice in diseases which reduce peripheral viewing field.



When a convex lens is mounted in a stand it has many of the same optical characteristics as a hand magnifier, but patients who have difficulty holding a lens steady find that the fixed focal distance gives them one less thing to worry about doing. Patients with orthopedic handicaps such as severe arthritis or tremors may prefer a stand. The task may also influence acceptance of a stand for very specific uses; stock market figures, bills, telephone numbers, dictionary. Again, like the hand magnifier stands tend to be used for short term viewing although a number of patients are happy with prolonged reading as well. A stand may seem cumbersome to the clinician with normal reading acuity, but it should not be neglected as a low vision aid.

When presenting aids to the patient, the clinician should introduce first the spectacle, next the hand magnifier and finally a stand in approximately the same dioptric range. This enables the patient to see what is possible and to begin to be able to relate the type of aid to various activities.

Refining the use and selection of aids is an area in which an assistant may be helpful to the clinician. Instruction in the use of aids may be time consuming in patients with greater deterioration of visual function. Patients in the early stages of loss, however, tend to accept magnification without prolonged instruction sessions; therefore, it is important to introduce high adds as soon as possible in the course of eye care.

Telescopic systems are used to improve the range of distance viewing and also for intermediate and near vision. They are the most flexible optical devices for low vision, although a restricted field and the need for precise focusing may present a problem for many patients. A well-designed telescope has a maximum field for its power, minimal aberrations and maximal light gathering potential. Some patients prefer hand held telescopes for convenience. These may be monocular or binocular. Other patients may need a telescopic system mounted permanently in a spectacle lens carrier. Although these systems are conspicuous, they fill a void for the person who needs better distance or intermediate vision.

Near vision telescopes allow a more normal reading range and should be prescribed if the range is more important than the field restriction, and if the patient is able to adjust to this type of correction. Instruction may be necessary, as well as the use of a loaner lens before the final prescription is given.



Videomagnification is another alternative for the patient who needs more flexibility for reading and writing than a high power spectacle aid allows. A television camera with a zoom lens can relay a magnified image to a monitor screen enabling the patient to sit back and view the print at whatever distance is best. Some patients gain reading speed with this method and are certainly able to write more normally. Television finds an important niche in vocations that require assembly work, typing and writing as well as in classroom situations where children can more easily participate in the learning experience.

Finally, after the optical aid has been explored the patient should also be exposed to an important group of aids that we often call "non-optical" because they do not utilize lenses to produce an enlarged retinal image. These help in every day things that people need to do, such as dialing the telephone, keeping lists, playing cards. All enlarged print falls into this group: playing cards, telephone dials, magazines and books. Marking pens using black ink enhance contrast as does the use of a typoscope, or masking device, that blocks reflection from the area surrounding the print that is being read. Illumination is often as important as the prescription of the correct aid. The patient who reads well in the office yet complains that the lens wasn't as good at home doesn't own the proper type of lamp. High intensity lamps are not always the best choice if glare is a factor. An incandescent lamp with a flexible arm and an internal reflector may be the best choice. Patients who are unable to adjust to optical devices may be happy with some simple non-optical device that helps them remain independent.

Remember that failure does not invariably mean failure of the lens or the technique of prescribing. The eye disease may have destroyed so much viable tissue that no amount of magnification can produce a useful image. Some patients have lost their momentum and interest in reading; no amount of coaxing or instruction will change them. We must also recognize mental deterioration for what it is and not force elderly patients to be embarrassed by their poor performance. Good clinical low vision practice involves a skillful blend of technique, knowledge of optical aids and attitude toward the importance of functional restoration.

Eleanor E. Faye M.D.
New York Lighthouse Low Vision Service



CURRENT DIABETIC MANAGEMENT

The treatment of diabetes has made a full circle from 1921, the year that Banting and Best discovered insulin, to our present 1978 concepts of diabetic therapy. When crystalline insulin was first prepared for clinical use, the only feasible regimen consisted of multiple daily injections to correspond to the mealtime glucose loads. Patients found this program to be inconvenient and cumbersome. A demand for a long acting product, which would enable a patient to take one injection per day, arose. To this end, the depot insulins PZI, NPH and Lente, were synthesized.

The medical world then hailed the discovery of the oral hypoglycemic agents, which appeared to offer diabetics the hope of freeing themselves from injections completely. The sulfonylureas and biguanides held out great initial promise for the long sought after "oral insulin".

Soon, the bubble burst. The well known and generally accepted University Group Diabetes Project cast great scientific doubt on the validity of widespread use of the oral compounds. The carefully controlled study carried on simultaneously at many university centers revealed that the initial response to the oral medication paralleled the initial period of weight reduction. After this initial period of "control", there was a progressive rise in the mean fasting blood sugar, as well as an increase in blood glucose level after a glucose load, in spite of continuing adequate dosage of medication. These subsequent blood sugars did not vary significantly from control groups of diabetics receiving diet plus placebo. It was also shown that the group of patients randomly selected for sulfonylurea therapy revealed a cardiovascular mortality over the period of the study, which was statistically greater than the other groups.

These facts led the practicing internist to question the large number of patients receiving these drugs over a long period of time and suspect that their withdrawal would not significantly alter their daily blood sugar fluctuations. Their suspicions were correct in a very large fraction of diabetics, especially those in which obesity persisted. So it appears that the sulfonylureas have been relegated to a minor position in the treatment of maturity onset diabetics and their role seems to be getting smaller with the passage of time.



CURRENT DIABETIC MANAGEMENT

The other category of oral anti-diabetic agent, namely, the biguanides, represented by DBI (phenformin) have been shown to be ineffectual as chemical hypoglycemic agents, and contributory to the lethal syndrome of lactic acidosis, and have no place in the management of diabetes whatsoever.

Therefore, except for the isolated patient with a special requirement for an oral agent, the latest group of compounds to come upon the scene, the sulfonylureas, are being gradually replaced by a return to insulin. Insulin remains the preferred pharmacologic agent because of its assured and continuing efficacy and its protective value in circumstances where acute impairment of insulin secretion or effectiveness arise.

The commonly employed methods of insulin administration, however, are far from ideal. The popular long acting preparations cannot accurately reproduce the in vivo timed relationship between food ingestion and insulin response. A dose of long acting insulin, which is adequate to cover mealtime glucose loads produces between meal hypoglycemia and doses which provide good between meal coverage are inadequate for post-prandial glucose spikes. It appears that one injection per day techniques employing depot insulin do not provide a desired level of diabetic control. The ongoing debates between adherents of tight versus loose control, may have their controversy nullified by the fact that both sides are arguing the same viewpoint, namely loose control.

The present trend is therefore a return to the original obligatory but now theoretically preferred regimen of multiple daily injections of crystalline insulin. A study by Job, et.al, in the Journal of Diabetes, relative to the rate of retinal microaneurism increase, showed a clear statistical difference favoring the multiple daily insulin dose regimen over the one insulin injection per day technique. The authors concluded that more frequent use of short acting insulin improves the diabetic control and retarded the retinal changes. Analysis of the data reveals that initial fasting blood sugar values were reduced from 200 ± 19 mgms./ML to 154 ± 15 in the final year of the study. This represents a definite improvement, but final blood sugar values remain far from normal.



CURRENT DIABETIC MANAGEMENT

A recently marketed system allows this concept to be carried further. The patient using a sample of capillary blood from a finger stick, is able by a portable microtechnique to measure his blood sugar hourly and match a suitable insulin dose for injection. This is a cumbersome and disruptive method to achieve pinpoint control but is of critical interest in testing the validity of the tight control hypothesis.

Another diagnostic adjunct that has become recently available to assist the diabetologist, is the technique for measuring hemoglobin A_{1c}. This derivative of normal hemoglobin A, is formed when normal hemoglobin is exposed to a high glucose environment. It is formed slowly and is relatively stable over a period of several weeks. It is not influenced by temporary metabolic changes and is therefore a more accurate indication of long and intermediate interval control than are established blood glucose levels. It holds great promise for assessing therapy and also studying basic protein alterations seen in diabetics.

The hope for the future is the ability to render the diabetic totally euglycemic with an artificial pancreas either transplanted or mechanical. Early studies involving transplantation of fetal, neo-natal, adult or cultured pancreatic tissue into laboratory animals failed to demonstrate a recovery from diabetes in the host. Recently, however, there are reports showing functional recovery from or amelioration of the diabetic state by isogenic transplants of previously ligated adult pancreas in mice. Ligation produces destruction of the acinar cells but the islets, containing intact alpha, beta, and ductal cells and vascular elements remain intact. Multiple implants seem to produce almost a complete recovery.

Artificial systems of control are being worked on at numerous centers. The so called "closed loop" system is presently available only on a research basis for short term patient use. It is the size of a television set. A needle is inserted into one arm where a computer measures blood glucose levels, determines the precise quantity of insulin required to restore the glucose level to normal, and delivers the insulin through a needle in the other arm. More work is required before the system can be utilizable, in an ambulatory setting, but cardiac pacemaker science has solved similar problems in miniaturization.



Low Vision Examination in Children

This examination is seldom one of a single patient. When dealing with the child the examiner must also deal with parent(s) and often educator(s). The "pre-examination" should best involve these people.

Before a word passes between examiner and patient an assessment can be made by evaluation of the appearance of the child: (How) does he walk into the examining room? Does he appear to be functioning visually? How does he relate to his parents? How do parent and child talk to each other or even look at each other?

After introductions, the history taking is the next important step. One must remember to ask several questions which may not appear at first to deal directly with the child's visual impairment. Get a brief maternal history as well as a quick evaluation of developmental milestones. The responses and success of the child will vary if vision has ever been "normal" or if it has been impaired since birth.

Children with hearing problems or other neurological abnormalities must be identified as these may play a role in the final evaluation of the functional vision. Information regarding medication is relevant since many popular drugs today such as phenobarbitol, dilantin, mellaril, etc. have ocular side effects ranging from transient production of nystagmus to actual retinal or optic nerve damage.

The history of the eye problem per se should be briefly identified. The question of diagnosis may not be as simple. The diagnosis may have to be reconfirmed or established. One cannot accept "catch all" diagnoses of amblyopia or congenital nystagmus. More frequently than not an underlying cause for these signs can be found.

The most frequently missed diagnosis appears to be that of albinism. Although we do not have statistics to back up our impression, we certainly have found several children with congenital nystagmus who had definite transillumination when it was checked. One must have a high index of suspicion when confronted with these patients. In our children's clinic we see albinism of all subgroups. Other frequently encountered diagnoses are high myopia, optic nerve maldevelopment, congenital cataracts and hereditary retinal problems.



Ancillary tests are frequently employed to help confirm diagnoses. These include ERG, VER, EER and EOG among others. Color vision testing will probably also offer more important information in the future when more sophisticated tests are available.

The procedure for the low vision examination of the child is similar to that of the older individual. The method(s) of obtaining visual acuity may vary slightly from an estimation in the infant to a more precise measurement in the school age child. Newer methods which are now still in the research phase are going to allow much greater accuracy.

The examination methods will be dealt with in detail in the Workshops.

Judith E. Gurland, M.D.
Pediatric Clinician
New York Lighthouse Low Vision Service



Afternoon Session

West Ballroom

COMMON EYE DISORDERS:

Medical, Surgical, and Low Vision Management

Moderator: Robert A. Silver, M.D.

Low Vision Clinician

New York Lighthouse Low Vision Service

In these sessions the speakers will discuss medical management and how the visual deficit resulting from the disease process can be handled.

GLAUCOMA

1:00-1:20 p.m.

Latest Medical Advances in Glaucoma:

Timolol Study

Miles A. Galin, M.D.

Professor of Ophthalmology

New York Medical College

1:20-1:35 p.m.

Primary Glaucoma, Cataracts:

Low Vision Management

Norman C. Charles, M.D.

Low Vision Clinician

New York Lighthouse Low Vision Service

DIABETES

1:40-2:00 p.m.

Current Medical Management

Morton D. Fisch, M.D.

Consultant

New York Lighthouse Medical Service

2:00-2:30 p.m.

Vitrectomy and Laser Treatment

Yale L. Fisher, M.D.

Associate Attending Surgeon

Manhattan Eye, Ear and Throat Hospital

2:30-2:45 p.m.

Low Vision Management Following Vitrectomy and Laser Treatment

Munro J. Levitzky, M.D.

Low Vision Clinician

New York Lighthouse Low Vision Service

2:45-3:00 p.m.

Coffee Break



ROBERT A SILVER, M.D.

Low Vision Clinician
The New York Lighthouse Low Vision Service

MODERATOR



MILES A. GALIN, M.D.

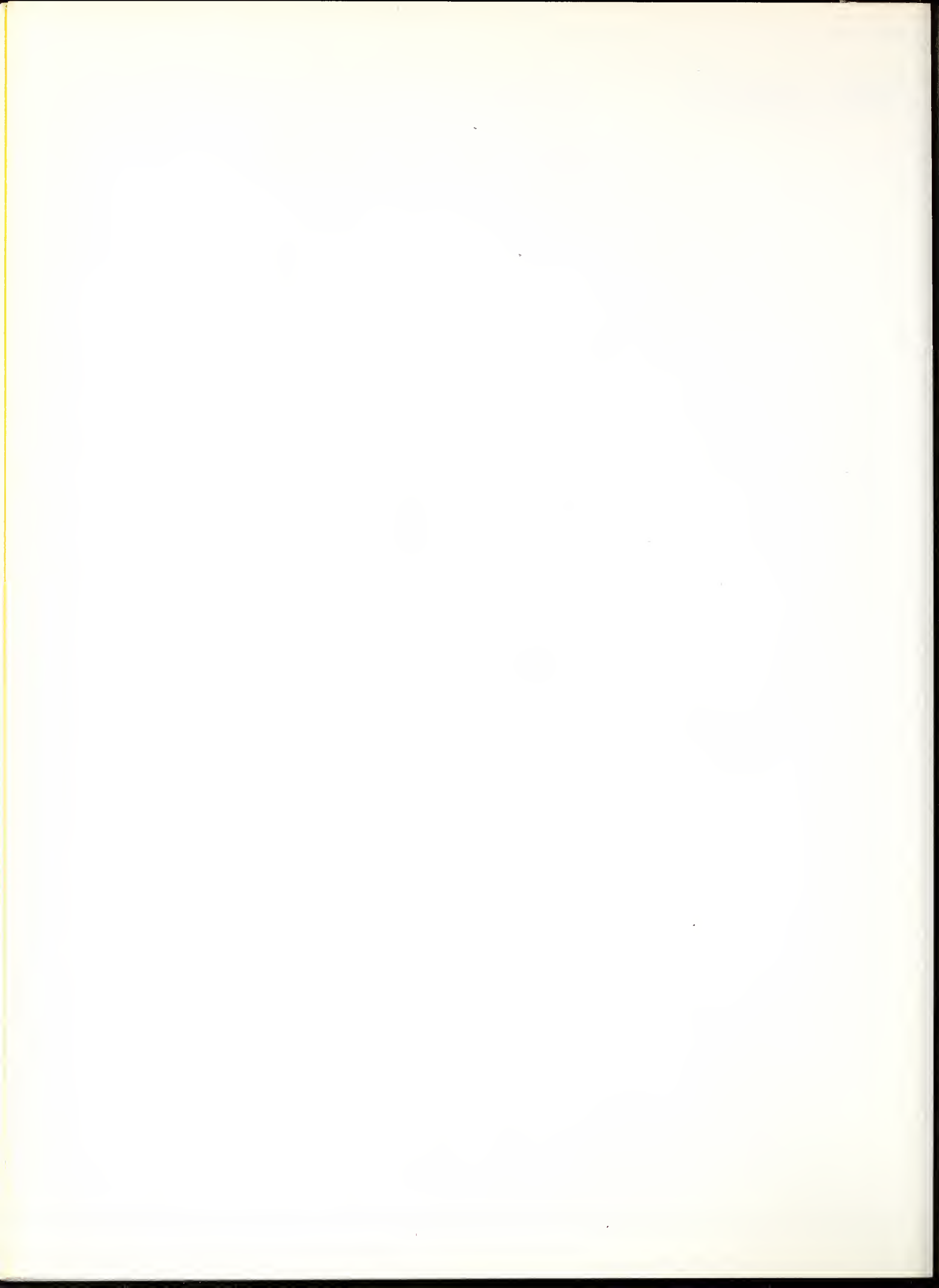
Professor of Ophthalmology
New York Medical College
New York



NORMAN C. CHARLES, M.D.

Low Vision Clinician
The New York Lighthouse Low Vision Service

Clinical Assistant Professor of Ophthalmology
New York University Medical Center



MORTON D. FISCH, M.D.

Medical Consultant
The New York Lighthouse

Instructor in Medicine
College of Medicine
New York University Medical Center
New York

Assistant Attending Physician
Lenox Hill Hospital
New York



CURRENT DIABETIC MANAGEMENT

For the moment, "open loop" systems seem to be a more realistic early goal. These systems do not measure glucose levels continuously as the close loop technique does. They deliver insulin by means of a tiny pump according to a pre-determined schedule through a semi-permanent indwelling device. These open loop systems are potentially less complicated and less expensive and have the advantage of being portable but are incapable of making the patient truly euglycemic over a period of time.

Morton D. Fisch, M.D.



TRANS PARS PLANA VITRECTOMY

By: Male L. Fisher, M. D.
Associate Attending Physician
Manhattan Eye, Ear & Throat
Hospital

Since management of the vitreous is incorporated in a large number of surgical procedures, this discussion will be limited to trans pars plana vitrectomy for anterior reconstruction and posterior vitrectomy for opaque media and certain retinal detachment operations. Open-sky techniques for vitreous loss at the time of cataract surgery or vitrectomy during corneal transplant procedures will not be discussed. I shall organize the discussion into four primary sections. First, case selection; second, presurgical evaluation; third, surgical techniques, and finally, visual results including low vision aids.

For the purposes of this presentation, vitrectomy is performed for situations involving opaque media or clear media where the vitreous plays a definite role in traction retinal detachment such as in the case of diabetes mellitus where conventional techniques are not sufficient for the repair and restoration of vision. Further help can be obtained from vitrectomy in handling acute emergencies such as endophthalmitis and intraocular foreign body management. The rare situation involving dislocated lens material into the vitreous cavity is still another area in which vitrectomy is helpful. In the anterior segment, secondary membranes, congenital cataracts and other anterior media opacities are easily approached with vitrectomy instruments. The final selection of cases is based upon the visual needs of the patient as well as a determination of the risks involved in the surgical procedures.



Presurgical evaluation is based primarily upon an accurate refraction as well as a complete slit-lamp evaluation of the anterior segment of the eye, including a determination of the health of the endothelium of the cornea and the degree of opacification of the lens. The intraocular pressure should be tested and an evaluation of any neovascularization of the iris should be made. In situations of opaque media, ultrasonography is a primary requisite to determining the topography of the internal contents of the globe. The perception of light is obviously essential and to some degree I find color perception with an extremely strong light helpful. Projection itself is not always helpful, because of the degree of opacification of certain vitreous abnormalities. Some of the more sophisticated electrophysiologic tests in my hands have not been helpful at all. They include the ERG, two part discrimination, bright flash ERG and interference laser patterns. Of note, the electroretinogram specifically will not be helpful in any acute total retinal detachment since it will register a negative reading as soon as the detachment becomes total. Many of these total detachments of recent origin are reparable. A reliance on clinical judgment is absolutely necessary.

Surgical techniques will be discussed during the course of the lecture. I shall include a discussion of primary lens removal at the time of vitrectomy as well as removing the lens at sometime prior to vitrectomy or not removing the lens at all. Complications of surgical techniques include those which are common in all surgical procedures, namely infection and hemorrhage as well as retinal detachment will be covered. A host of new complications are involved with trans pars plana approach. New skills are essential for the complex bimanual maneuvers required within the globe. Techniques and complications will be illustrated. Additional treatment involving post-operative laser therapy or intraoperative endophotocoagulation will also be discussed.

1



The visual results depend to a great deal upon the basic integrity of the retina following surgery. A careful refraction is essential. In situations where macular disease has progressed to a significant degree, low vision aids have been very helpful. Contact lenses are utilized whenever possible to improve the peripheral vision of these patients. A number of examples will be presented to illustrate these points.



MUNRO J. LEVITZKY, M.D.

Low Vision Clinician
The New York Lighthouse Low Vision Service

Attending in Ophthalmology
New York University Medical Center



RETINAL DISEASE

3:00-3:30 p.m.

Color, Glare and Lighting

Alan Lewis, O.D., Ph.D.

Associate Professor of Physiological Optics

State University of New York

State College of Optometry

3:30-4:00 p.m.

Electroretinal Procedures

Jerome Sherman, O.D.

Associate Professor

State University of New York

State College of Optometry

4:05-4:25 p.m.

Treating the Macula

Lawrence A. Yannuzzi, M.D.

Attending Surgeon

Manhattan Eye, Ear and Throat Hospital

4:25-4:45 p.m.

Retinitis Pigmentosa

Gerald Fishman, M.D.

Associate Professor of Ophthalmology

University of Illinois

LOW VISION MANAGEMENT

4:50-5:10 p.m.

For Macular Disease

Alan H. Barnert, M.D.

Low Vision Clinician

New York Lighthouse Low Vision Service

5:10-5:30 p.m.

For Constricted Fields

Norman J. Weiss, O.D.

Director, Low Vision Service

• *Blind Association of Western New York, Buffalo*

6:00 p.m.

Cocktails

Mercury Ballroom and Rotunda

ALAN H. BARNERT, M.D.

Low Vision Clinician
The New York Lighthouse Low Vision Service

Attending Surgeon
Manhattan Eye, Ear and Throat Hospital
New York

Associate Clinical Professor
of Ophthalmology
Mt. Sinai School of Medicine
New York



NORMAN J. WEISS, O.D.

Consultant
Low Vision Services
Blind Association of Western New York
Buffalo, N. Y.



ALAN L. LEWIS, O.D., Ph.D.

Associate Professor of Physiological Optics
and Optometry
State University of New York
College of Optometry

Coordinator, Graduate Program
State University of New York
College of Optometry



JEROME SHERMAN, O.D.

Associate Professor and Chief
Department of Ocular Disease
and Special Testing
State University of New York
College of Optometry
New York

Professor and Chief
Department of Ocular Disease
and Special Testing
Southern California College of Optometry
California



LAWRENCE A. YANNUZZI, M.D.

Attending Surgeon
Manhattan Eye, Ear and Throat Hospital
New York



GERALD FISHMAN, M.D.

Associate Professor of Ophthalmology
University of Illinois
Chicago, IL



COLOR, GLARE, & LIGHTING

Color vision testing can be a useful and informative tool in the diagnosis and treatment of many conditions which cause low vision. Because the ability to discriminate among colors is dependent upon the structural and physiological integrity of the retina and visual pathways, subtle abnormalities in the system are often reflected in anomalous color perception. Color vision testing is especially useful where there is a lack of medical history and where etiology and time of onset of a condition is unknown.

The ability to gain the maximum of useful information from color vision testing is limited chiefly by the sophistication of the testing apparatus available to the doctor. There is a sizable body of literature on the colorimetric evaluation of visual pathologies and anomalies using laboratory instruments of exceptional accuracy and complexity and which, unfortunately, are available only at major testing facilities. However, a great deal of useful information about color vision can be gathered from tests which can be performed in the office.

The Choice of Test

Evaluation of the partially sighted patient requires a test (or tests) that is relatively simple to administer and perform, that is not limited by reduced acuity, does not require precise fixation, and which not only will differentiate the normal from the color deficient, but which will also classify the deficiency with regard to type. It must be noted that virtually all the available tests classify patients into categories most suitable for the hereditary types of deficiencies; these categories may be less clear for acquired anomalies.

While no one test is suitable for all patients, we have found that the Panel D-15 (Farnsworth-Munsell D-15) test is satisfactory for most purposes; properly administered, it yields a great deal of information. The D-15 test classifies anomalies into protan, deutan, and tritan types and can also be used to classify rod monochromats (a typical scotopic response is shown in fig. 1). The D-15 has been used without difficulty on patients whose acuity is less than 20/200 and has proven to be accurate and repeatable. As with all reflective color tests, it must be used with a proper illuminant (A MacBeth Easel Lamp is specified, but a 100 watt incandescent lamp in combination with a Wratten #78AA filter has





been shown to give results identical to the MacBeth lamp for a fraction of the cost).

Color Deficiencies in Low Vision Patients

The type of color deficiencies found in the partially sighted patient are most often of the acquired type and will depend on the etiology and state of progression of the individual disorder. In general, diseases of the optic nerve will result in deutan classifications, diseases of the retina will cause tritan deficiencies, and extensive cone degenerations will result in a scotopic response pattern. The following table lists the usually expected findings:

Tritan:

- Senile macular degeneration
- Siderosis
- Retinal detachment
- Chorioretinitis
- Retinitis Pigmentosa (late stages vary)
- Central Serous Retinopathy (often incomplete)
- Diabetes Melitus
- Hypertensive retinopathy
- Glaucoma
- CRA occlusion
- N II atrophy (early stages may show protan)

Deutan:

- Acquired N II atrophy (Leber's disease)
- Retrobulbar neuritis

Scotopic:

- Juvenile macular degeneration (early stages may show protan)
- Posterior Staphyloma
- Typical achromatopsia (rod monochromacy)

Early stages of disorders that eventually will be classified as tritan defects may be seen as consistant reversals in disks 11-15 with the remainder of the color order being normal. Any time that a tritan defect is recorded, retinal disease should be suspected; while protan and deutan defects are commonly found in otherwise healthy and normal eyes, tritan defects are almost always associated with pathological conditions. When protan and deutan defects are found in acquired deficiencies, they can sometimes be differentiated from the hereditary type by their lack of regularity and marked differences between the two eyes. Such differentiation, however, is chancy at best and furthur testing should be performed before diagnoses are made.



Correction for Color Deficiencies

There has been some publicity lately on the X-Chrome lens which some claim will compensate for color deficiencies. We have tried the lens on several color deficient patients without any increase in their ability to discriminate among hues of equal luminance. Additionally, we have tested nearly 100 color deficient patients with a lens having the same spectral transmittance as the X-Chrome lens (but not made in contact lens form) and have found no improvement in color discrimination. It would appear that the success ascribed to the X-Chrome lens is due to the fact that it is almost always tested using pseudo-isochromatic plates; under such testing, the findings are invalid because the patient uses brightness discrimination rather than color discrimination to identify the figures on the plates. The red lens absorbs relatively more green than red light and thus makes the figure darker than the background (or vice versa).

Such a filter may have some use for persons in occupations where gross differentiation of colors are necessary and where it is sufficient to merely determine whether or not two apparently similar colors are indeed different but where true color discrimination is not required.



Outdoors however, the problems of mobility may be minimal. Functionally, the person with macular degeneration should be able to do quite well. The periphery being intact, the person has the advantage of being able to maintain his balance and placement on the sidewalk as he travels down the street. The person's side vision may include both the building line and curb side of the sidewalk. If not, the person can be taught to scan from side to side so that these things are included in his visual field. Often, the fact of the central field loss is so overwhelming, that the person must be made aware of what he is still able to see. He has to be taught to concentrate on those objects that are visible with the periphery. As you well know, the macular is necessary to discern the detailed metal work of a cellar door. However, the periphery is sufficient to inform one as to where that cellar door is in relation to his path of travel, and whether it happens to be open or not. The same is true for many other sidewalk obstacles. Teaching the person to scan from side to side will enable him to move that scotoma out of his direct path of travel so that even obstacles directly in front of him will be discernable and avoidable. Also, the person can be taught to cross streets safely using his vision to concentrate on the movement of cars following a path parallel to his path of travel.

The type and extent of mobility aids used by the older adult with macular degeneration will very often depend upon the individual. If the person can develop good scanning habits, their travel may not require the use of the cane as a probing device, but merely as a means of identification. Very convenient for the older adult is the Auto-Support cane. This cane is measured as an orthopedic cane and is sturdily built so that it can be leaned upon for support. Because it is red and white, it serves as an identification for the legally blind person. Other people need to use a longer cane to help locate obstacles and reassure themselves that no obstacle is present. In these cases, the long or folding cane is prescribed and the person is taught to hold it in a position diagonally across the body with the tip of the cane falling in front of his path of travel. In this position the cane will discern curb drop-offs, irregularities in the sidewalk terrain and low obstacles. There are also some people who prefer to use this cane in a constant sweeping motion in conjunction with whatever residual vision they have. It should be pointed out here that whichever cane is prescribed for use and whatever technique is advised, the cane is always used to supplement vision not as a substitute for it. These variations depend upon the individual person as well as the stage and severity of their disease. In some cases of macular degeneration, the color vision is greatly diminished and therefore so is the perception of some obstacles.



JOSEPH L. SHAPIRO, O.D.

Co-Author of the Book
OUT OF SIGHT, INTO VISION

Lecturer

Practicing Optometrist



IS THERE A PLACE FOR DEVELOPMENTAL VISION?

An ironic twist of fate, the New York blackout, night time, July, 1977, reduced the sharp contrast in seeing capability between the sighted and the blind. For a brief moment in time, the blind became the sighted and the sighted became the blind.

Stripped of all visual cues to reality, millions of New Yorkers groped for flashlights and candles but Harold Krents wrote, "I remained cool and calm because for me, every day, every night, every summer, winter, spring and fall is one constant blackout." (1) Harold displayed remarkable dexterity, as most blind people do, and triumphantly led his classmates down to dinner and back to their rooms.

The extraordinary and highly complex capacity of spatial orientation, that is, guiding oneself and maintaining a stable position with reference to surrounding objects, ordinarily is taken for granted by most people. But when true disaster strikes (through a case of pathology, ocular or otherwise) permanently obliterating to some degree our most dominant sensory-motor system of the body - our eyes - tremendous deficits in performing the most menial tasks may occur as visual space perception suffers.

Before any rehabilitative regimen can be successfully instituted, the trained professional must reorient his own mode of perception and abandon his traditional way of looking at vision. Conventional wisdom reduces all problems of vision to those of clarity of sight (20/20) neglecting vision's functional performance or performance aspects. There is a distinct dichotomy between sight and vision.

Eyesight may be defined as "the sensory ability of the eye to distinguish small details far and near and is only one component of vision." Vision represents "the individual's ability to react to and interact with his environment on the basis of information received through his eyes..." It "is a cognitive act which enables us to look at an object and not only identify it, but determine where it is, its size, its distance from the observer, its rate of movement, its texture, its smell and everything else that can be determined by visual inspection." (2)



Eye doctors who slavishly adhere to a 20/20 "eyeball" model of vision may find it totally inadequate for the solution of patient's visual problems especially those of the partially sighted. We must adopt a holistic approach or a developmental model - one that considers human potential and the total individual in relationship to visual environmental demands. Even though experimental evidence and clinical observation continue to support the effectiveness of visual training techniques, partisan pronouncements by optometrists and ophthalmologists continue to be based upon emotion rather than fact. They ridicule developmental visuo-motor therapy. They do not understand it. The public and allied professionals have remained ignorant and misinformed of this approach.

"Visuo-motor therapy hopes to take you out of the commonplace level of sight into a new awareness, where seeing and doing, perceiving and reacting, sensory reception and motor expression become an almost simultaneous experience." (3)

Let us not underestimate the value of sight since it is of utmost importance in the rehabilitative process. Step one in any treatment regimen is to dispense an optical aid to maximize visual acuity if possible; then employ developmental visual training techniques to establish maximum visual efficiency with or without a visual aid. Sensory-motor integrative training is a means to accomplish this developmental end. It entails matching of visual stimuli with information from the other sensory modalities for reinforcement. Unless a consistent relationship is established between hearing, touch, kinesthesia and the warped visual pattern of the low vision patient, behavior as indicated by overt movement may bear little or no relationship to in-coming sensory information. It is hoped that visual training will establish vision as the dominant sense modality so that it may once again take the lead. There are those cases in which visual deficits are so substantial that vision must be relegated to an assistant's role. If the eyes and visual system are so severely damaged that non-visual methods of training must be utilized. Auditory, tactual, and proprioceptive feed-back then become the primary avenues for information gathering. These patients must be treated in the same manner as those with "no light perception."

Developmental vision therapy strives to reorganize the sensorium and in so doing develops self-reliance, self-confidence, mental, physical and emotional control. In a paper entitled,

"Optometric Developmental Vision Therapy" presented to the National Council on Holistic Therapeutics and Medicine, Raymond Gottlieb, O.D., Ph.D., stated, "Teach an individual to see twice as fast, remember twice as much but with only one half the effort, and a profound change occurs in the quality and consciousness of the life of that person. Improve the quality of the perceptual skills and the benefits the life of the individual will be immeasurable."(4)

We must help the low vision patient cultivate new perceptual styles, an "art of seeing," a new way of looking at the world.

The art of visual scanning combined with head and body movement is a technique in the developmental armamentarium to aid the patient with severe visual field loss. This method is especially useful in patients who are essentially monocular as an aid in depth discrimination by motion parallax.(5) The apparent displacement of an object as the eye moves from one point to another in space will differ from objects nearer or further than the point of fixation. Type of displacement (with or against motion), speed of displacement and amplitude of displacement are all indicators of depth to the trained eye.

Eccentric fixation training - that is, teaching the patient to use intact peripheral retina for imaging an object of regard - will help the partially sighted patient overcome problems associated with central loss. Patients with central scotomas will exhibit a reduction in visual acuity, difficulty in identifying objects, inability to hold steady fixation on an object, and difficulty in negating the natural reflex - initially triggered by detection in the peripheral retina - to fixate objects within the central field.

Eccentric viewing may be a difficult task to learn especially in the case of the adventitious loss or one that develops after many years of normal visual function. However, once one masters the technique, one is more adept in using residual vision than those who never practiced. (6) Not all patients with macular damage need eccentric fixation training; the field loss must be large enough to warrant it.

Peripheral retinal training should go beyond training an individual to achieve maximum visual acuity by sighting with a select area of the retina. Awareness of the entire visual field can be increased by teaching an individual to be more sensitive to peripheral input. Peripheral awareness training is a basic goal in any developmental optometric training



program. It involves mental exercising in combination with tachistoscopic flashing, form recognition fields, and a variety of other in-space procedures in order to improve the quality of peripheral vision.

Developing and utilizing peripheral visual input is reported to lead to many beneficial, relatively long-lasting, effects concerning visual acuity, motion perception and absolute threshold.(7) With as little as 4 to 5 hours of visual training coupled with feedback, perceptual learning and practice resulted in dramatic improvements in performance for motion detection and absolute threshold. The absolute threshold can be as much as a thousand times higher before training than is the final threshold in practiced subjects.(8) Relative to training peripheral visual acuity for a specific task, many subjects reported a greater overall awareness of objects and stimuli in the peripheral field. Subjects seem to learn to develop a strategy for optimizing the acquisition of visual information, as improved performance generalizes to everyday activities.

Imagine activating muscle systems involved in a complex motor act simply by conjuring up a mental picture of the desired action. This has been verified by physiological studies. In addition, repeated practice in visualizing, that is, seeing with the "mind's eye," helps develop a "muscle memory" of an activity,(9) a space structure of the world around us, and will increase performance in real space. The value of mental practice in relation to physical action would be an invaluable asset to the partially sighted. A creative imagination will reduce the number of mistakes the partially sighted individual makes at the physical level. Movement in space through time is predictable based upon our "non-visual" conception of our surrounds. The art of seeing projects "backward" in space and time to darkness where we generate our "view" of the world.

It has been presumed that cortical stimulation is a prerequisite for spatial perception. Exciting new evidence now points to a secondary peripheral visual system independent of cortical pathways. This alternate system seems to be responsible for an unconscious ability to see even in those with serious cortical lesions. Subjects, although unable to verbalize what they see in their blind field, can indicate with accuracy using a motor response. This primitive visual system, once thought to be vestigial, seems to be primarily an orienting mechanism, intimately involved with motor responses. "The cortical visual system apparently developed its controls over



the lower system... was added for discrimination, control of finer movements and so on."(10) "If we reflect on the interdependence of vision and movement, we realize how visual skills are but motor expressions of human performance."(11) And that's where developmental vision rests its foundation!

Joseph L. Shapiro, OD
10/19/78

THl:sw



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SPECIAL PROGRAMS

WORKSHOP ON OPTICS OF LOW VISION AIDS

EXHIBIT AREA, 4TH FLOOR

This Workshop will consist of short lectures and demonstrations on optics of low vision aids. It will be presented at intervals during the day.

Robert Rosenberg, O.D., F.A.A.O. Chairman
Basic Optometric Science Department
State University of New York
College of Optometry
New York



SPECIAL PROGRAMS

WORKSHOP ON PROBLEMS RELATED TO ADMINISTRATION OF A
LOW VISION SERVICE

BY
APPOINTMENT

6th FLOOR CONFERENCE ROOM

Clare M. Hood, R.N., M.A.

Administrative Director
Low Vision Service
New York Lighthouse



SPECIAL PROGRAMS

EXHIBIT AREA - 4TH FLOOR

OPEN ALL DAY

Charles P. Koehler, B.A.
and Staff

Manager
Optical Aids Service
New York Lighthouse

EXHIBITORS

OPTICAL AIDS

American Optical
Bausch and Lomb
COIL

Designs for Vision
Keeler
NoIR

ELECTRONIC OPTICAL AIDS

Pelco

Visualtek

OTHER DEVICES FOR PARTIALLY SIGHTED
AND BLIND PERSONS

American Foundation for the Blind
Diabetic Devices
Mobility Aids
National Association for Visually Handicapped
Telesensory Systems, Inc.



Friday, November 10

New York Association for the Blind

WORKSHOP SESSIONS

These workshop sessions will demonstrate the approach of the Low Vision Clinician, the Low Vision Assistant and professionals in Education, Medical Services, Orientation and Mobility, Rehabilitation and Social Services to the management of low vision patients with glaucoma, retinitis pigmentosa, diabetes and macular disease.

Several of the workshops will run simultaneously and will be repeated depending on demands of the advance registration. It will be possible for each applicant to participate in three workshops, view the exhibits and attend one of the special programs.

Coffee will be available throughout the day in the 4th floor cafeteria. Box lunches will be provided there from 11:30 a.m. to 2 p.m.

INTRODUCTION TO WORKSHOP SESSIONS

Lighthouse Auditorium, 1st floor

9:00 a.m.

What a Clinician Needs From a Rehabilitation Center

Randall T. Jose, O.D.
*Chief of the William Feinbloom
Rehabilitation Center
Philadelphia, Pennsylvania*

How a Rehabilitation Agency Responds

Arlene R. Gordon, M.A.
*Associate Executive Director
Program Services
New York Lighthouse*



INTRODUCTION
TO
WORKSHOP SESSIONS

AUDITORIUM, MAIN FLOOR

RANDALL T. JOSE, O.D.

Chief of the William Feinbloom
Rehabilitation Center
Philadelphia, PA

ARLENE R. GORDON, M.A.

Associate Executive Director
Program Services
The New York Lighthouse

The "Low Vision Service" is a series of inter-related assessments, evaluations, tests and instructional activities offered to a visually impaired individual in an interdisciplinary setting. It is important to note that this definition emphasizes activities and/or responsibilities, to the visually-impaired and does not address problems of professional role responsibilities, facilities, specific tests, etc. If we define the low vision service as being a problem solving endeavor on the part of many professionals; for the visually-impaired; then it is obvious that there can be a great deal of variation in how the low vision service is delivered.

A three phase program of care will be described. The effort is to present a series of goals and responsibilities that will stimulate clinicians to look at their own resources to see how they might make effective contributions to the service in any or all of these three phases described. The first phase entails those pre-exam services/activities directed towards identifying visual and other problems of the patient and trying to determine how effectively the person is utilizing their residual vision.

While the most common problem identified among the visually-handicapped will be the need for low vision aids; this is hardly the only or even most important problem. As such, the rehabilitation professional involved with the individual in phase one will have to do some extended evaluations to determine the extent of additional social, financial, vocational, educational, psychological, emotional or other rehabilitation problems. These must then be put in some form of priority. This problem-oriented evaluation can occur within a variety of rehabilitational settings and be performed by any number of professionals or groups of different professionals. The evaluation may simply entail interviews with observations or the evaluator(s) may wish to do some non-diagnostic testing procedures:



In selected settings where there is close coordination between the clinician and the rehabilitation professionals in the field, some extensive functional (ie, not clinical) testing can be performed by the rehabilitation personnel. A sample report form is provided at the conclusion of this paper. The rehabilitation professional provides information about how the patient performs visually in a variety of tasks and settings in the non-clinical setting. These evaluations will make an excellent introduction of the patient to the clinician and help the clinician provide a more meaningful and effective series of diagnostic tests for this specific patient. This information can be invaluable.

The only thing that really matters is that:

1. The individual is brought into the rehabilitation setting.
2. The problems are elicited by an extended intake process.
3. The appropriate referral is made for low vision and other needed services.

If the clinician is aware of the techniques (or tests) used in making the preliminary evaluations; then appropriate and compatible examination services can be provided which is phase two of our low vision service. Since we are concentrating our discussion on the low vision service, phase two will be described as a referral to a low vision clinic. I would like to point out at this time two very important considerations to be made when reading these comments:

1. When reference is made to a low vision clinic; we are using the term to indicate any clinical vision care program where optometric and/or ophthalmological low vision examinations are offered. This may occur in the rehabilitation setting, private practice, educational setting, optometry school, department of ophthalmology, mobile unit, etc.

2. While we are assuming most patients will be referred to low vision clinics for care, many of our visually-handicap have severe problems in other areas and may need psychological, educational or other care prior to initiating low vision clinical care. Most of the time, initiating low vision clinical care can provide information that will assist those providing other needed services.

The clinical low vision service should exist as a resource to the rest of the rehabilitation community. No low vision clinic program can exist by itself in the rehabilitation process. The purpose of the clinic is to provide appropriate medical, optometric and/or optical aid services to help resolve specific problems presented by the patient and by those evaluating the patient in phase one. If the examination services are to be effective, the patient should return to the initial training program (home, school, work, etc.) with the potential for functioning at an increased level of visual activity for those tasks previously specified as being problem areas. This obviously mandates a direct input from rehabilitation professionals in the field to the clinical service. The clinician may have several treatment options to pursue for an individual patient and will need additional information in order to prescribe. Without the input from the professional in the field, an appropriate (note this does not state incorrect) treatment plan may be initiated. For instance, the counselor may send a client to the clinic for help in seeing the blackboard for college. If this need is not communicated to the Doctor, then it is highly likely that the client will be given microscopic lenses for reading regular print. This recommendation comes back to the counselor (who doesn't want the client in regular print at this time) and she/he is upset with the clinic or doctor for their ineffectiveness and/or stupidity!!



problem areas. Once again, the final Rx can be significantly influenced by the input of the rehabilitation counselor.

If the doctor knows how the patient functions in a variety of settings, and has the luxury of a good intake system such as the referral report attached, and uses that information, a greater success rate will be enjoyed. The doctor must be willing to accept the professional opinions of his/her colleagues and be willing to change a treatment option based on their input. A lot of good healthy debate about treatment options that ends up in an accepted plan of action is the greatest asset a rehabilitation team can offer individuals with low vision.

(Attach copy of Medical Eye Report)

Name: Medications:
Birthdate:
Grade/Job: Other Impairments:
Client understands his/her visual impairment Yes No Unsure
Explain:

Client's Visual Needs:

- A.
- B.
- C.
- D.

Functional Vision

In all categories note factors such as lighting conditions, distance and size of objects, etc. Use specific examples to illustrate the client's strengths and weaknesses.

Visual Posture/Behaviors

(eg, tactual/visual approach, light flicking/gazing, body symmetry, head posture, preferred eye, eccentric fixation/viewing, squinting, etc.)

Near Vision (Face to 16" /40cm.)

(eg, awareness of lights/objects tracking of lights/objects, eye-hand coordination, preferred working distance for play, reading, writing activities, etc.)



REFERRAL REPORT

Intermediate Vision (16" /40cm-- arms length)

(eg, awareness of lights/objects reaching objects, reading music, typing, workshop activities, etc.)

Distance Vision (Beyond arm's length)

Indoor (eg, ability to detect facial details, reading chalkboard, watching T.V. and movies, object detection/avoidance, etc.)

Distance Vision

Outdoor (eg, sees traffic lights, sees and/or reads street and store signs, bus numbers, object detection/avoidance, etc.)

Visual Fields

(eg, bumping into/tripping over objects, undetected objects, shuffling feet, misjudging distances at steps, curbs, etc. Note location, size and height of objects bumped into, tripped over or undetected.)



REFERRAL REPORT

Travel Ability

(Note level of dependent/independent functioning in both familiar and unfamiliar environments, use or non-use of travel aids, etc.)

Illumination/GI are

(Note preferred illumination, glare recovery and dark adaptation times, night vision, etc.)

Questions and Additional Comments:

Evaluator_____Job Title_____

Date:_____



"THE RESPONSE OF THE REHABILITATION AGENCY TO THE CLINICIAN"

This Symposium was designed to present to the professional community, both the clinicians and rehabilitation personnel, the problems of today in the management of the low vision patient and the challenges to all of us for tomorrow. These challenges will involve providing not only the most effective and efficient low vision service but also those rehabilitation services which enhance the capacity of the individual to make maximum use of the services and to achieve his or her own goals.

Yesterday's presentations covered present methods of patient management in the four major disease entities that result in reduced vision. We have just heard a description of a total approach to low vision that highlights what the clinician needs from rehabilitation personnel to help his patient make maximum use of residual vision. The workshops that follow will attempt to draw, in broader strokes, examples of what rehabilitation personnel are able to offer to the clinician's patient. As pointed out so clearly by Dr. Jose, the collaboration, communication and coordination between rehabilitation personnel and the clinician are essential ingredients in low vision rehabilitation. The workshops will describe the specific problems faced by persons with low vision in four major categories, and will demonstrate various personnel (disciplines) and solutions (services and programs) which may be utilized.

From Lighthouse experience, what the workshops also demonstrate is the relationship between the pathology and the needs of specific groups of patients. Thus, while certain themes are generic to each discipline's presentations in the workshops, there are problems specific to patients with different eye diseases which must be understood and met by both clinicians and rehabilitation personnel.

Our objective also is to describe, more fully, the services of rehabilitation personnel in order that the clinician may become more knowledgeable about when, why and how to seek such support in his community. The New York Lighthouse, because of the size of its client population and its multi-service programs, offers within one organization several systems of service delivery that can be studied. These methods or models of providing services may then serve as a guide in developing similar service programs in other communities.



Each patient is a unique individual. What is essential for the most effective low vision service is an accurate assessment of his capacities and incapacities coupled with the appropriate combination of aids and services. Evaluation of our own services has documented that different service patterns evolve from different patient needs. For some patients, the process described by Dr. Jose is compressed into one examination and prescription of an aid; for others, loan systems, training and the utilization of various disciplines is necessary.

We hope that the workshops will provide a forum in which the clinicians and rehabilitation personnel can view and discuss an interdisciplinary approach. It is hoped, that as a result of this opportunity for open communication, all professionals concerned with the management of the low vision patient can take away with them ways in which they can implement more effective low vision care in their own communities.

Arlene R. Gordon, M.A.
Associate Executive Director
Program Services

November 1, 1978

Low Vision Services in an Agency: Structure and Philosophy

ABSTRACT: The development and present structure of the comprehensive Low Vision Service of the New York Association for the Blind are used as the basis for a full discussion of the operation of such a clinical service, including its positive and negative features. The clinic is administered by a medical director and by an administrator who coordinates the work of a staff consisting of ophthalmologists, optometrists, low vision assistants, volunteers, registrar, and receptionist. A separate Optical Aids Service stocks low vision aids which it sells by prescription to clinics, doctors, and patients within and without the agency. Referrals for special services are made to the other departments of the agency. Also described are the low vision examination itself, follow-up and training services, and the aid loan system.

No low vision clinic springs into existence fully equipped and fully proficient. The evolution of one agency clinic from its simple beginning to its complex present structure is worth sketching briefly since the evolution was brought about by an analysis of service and attempts to improve patient care.

□ In 1953, the New York Association for the Blind started a research study to determine how low vision aids could be prescribed and used by a selected number of cases. From this came the study by Fonda (1956) on the first 500 patients. The need for aids was established immediately and the Lighthouse Low Vision Service was set up with the limited goal of examining partially sighted clients and dispensing aids. The Optical Aids Department was soon added to the clinic to remedy the delays and poor service inherent in ordering aids from widely dispersed sources. Teaching other ophthalmologists who were interested in low vision began early in the clinic's history. In 1963, when the clinic went on a data collection system (McBee), the first comprehensive success-failure statistics were compiled to analyze patient acceptance of aids. The relatively high failure rate was found to be related to haphazard training and follow-up examinations.

□ The most basic reasons for failure were inadequate training in the use of devices and poor referrals for other services. The outgrowth of the analysis of the failure rate was the establishment of a comprehensive follow-up and training system done by a low vision assistant. Other agency services were added on a consulting basis or incorporated into the clinic's structure, including casework, rehabilitation, orientation and mobility, hearing tests, psychiatric and psychological testing, and neurological and pediatric consultation. The philosophy of the low vision clinic reflects the experience that a low vision service is not "just an optical aid," but a complex interaction of varying services, different for each patient.

□ The Lighthouse Low Vision Service presently functions as a referral source for information and patient rehabilitation from within the agency, from community agencies, and from the medical profession. The program has the fol-

ELEANOR E. FAYE, M.D., F.A.C.S.
CLARE M. HOOD, R.N., M.A.

Dr. Faye is medical director, New York Lighthouse Low Vision Service, and attending surgeon, Manhattan Eye, Ear and Throat Hospital; Ms. Hood is administrative director, New York Lighthouse Low Vision Service, and director, Medical Services, New York Association for the Blind.

New York Association for the Blind

Developments in the 1960's

The Present Service



following goals: 1) to see each patient as an individual and evaluate his visual function; 2) to give appropriate aids, whether optical or nonoptical, with in-depth instruction and follow-up; 3) to refer him for other services, including more extensive medical, audiological, or ophthalmological work-ups (psychological evaluations, casework, orientation and mobility, and rehabilitation are available within the agency on direct referral); 4) to train ophthalmology residents and optometry students to recognize vision problems in their practice and to provide a view of a patient's life which is not highly visible in a hospital setting and to teach them a philosophy and an approach to low vision; 5) to provide ophthalmologists and optometrists with consultation, lectures, seminars, films, and exhibits about low vision; 6) to offer training programs for ophthalmologists, optometrists, and low vision technicians or assistants who are interested in acquiring new skills or updating old skills; 7) to keep up with the latest technical information and to provide a climate of creativity in the exploration of aids; and 8) to evaluate cases statistically on an annual basis.

□ Agencies for the "blind" are being forced by an awareness of a statistical shift in the proportion of partially sighted people to provide services for this majority. Therefore, a high-priority service would be low vision, either self-contained or available in a community center. The question arises as to the best location for this type of service: 1) academic (medical or optometric institutions); 2) general hospital providing health care in many specialties; 3) agencies for the blind and visually limited; or 4) private practitioner. The primary goal in the academic setting is on teaching students, with patient service secondary. The low vision clinic tends to be a small part of the eye department with limited service and poor access to rehabilitation services. A general hospital is primarily involved with volume, diagnosis, and treatment, giving low priority to the low-volume (i.e., non-money-making) special services. In contrast to the hospital center, which is geared to improving technology, speeding service, and cutting costs; the agency for the visually handicapped is geared to spending more time on a small group of people with a common problem.

The private practitioner is limited in the amount of time, equipment, and scope of services he can offer an individual patient. Many patients seeking private care may be served by optical aids alone unless they need additional services. Here the private doctor does the initial evaluation and serves as a referral source to the specialized low vision clinic. An agency geared for a specific disability would, at first glance, seem to be a logical location for the low vision clinic. A low vision clinic in this location can assume part of the agency's obligation to provide the type of rehabilitation services needed by people who are not "blind," yet who are not fully sighted.

□ The New York Lighthouse Low Vision Service in its present form is not a typical model because of its size and range of comprehensive services. Our experience shows that the expense of staffing and servicing a low vision clinic has been worth the struggle to grow and prove the ultimate worth of the service. The clinic has existed for over 20 years, has good support, and no longer struggles for recognition from the agency or the medical community. Regardless of our "establishment" position, we have features in common with any agency-

Possible Sites for Clinics

Hospital

Private practitioner

Agency

The Lighthouse Low Vision Service

based clinic, both positive and negative. The positive features of such a clinic include: 1) patient rehabilitation is a primary goal; 2) multiple services available in all areas of rehabilitation and counseling; 3) high priority on the hierarchy of services because of the rehabilitation connotations; 4) continuity of service to the patient by one examiner; 5) less financial restriction (private donations and endowments available without the red tape of grant applications); 6) access to sympathetic administration; 7) staff politics are at a minimum; 8) favorable climate for access to consultants; and 9) provides a neutral ground for referrals because basic medical treatment remains with the referring doctors. The negative features include: 1) public image is that the agency takes care of blind people only, which may delay referral; 2) psychological impact on patient who is being referred by his doctor (fear of implications of impending blindness); 3) cost to patients may be higher because of a lack of insurance coverage for services; 4) agencies, since they do not deliver medical treatment, must be careful to keep the patient in contact with medical care; 5) agencies may tend to have a paternalistic or traditional program with a hierarchy of services in a "package"; and 6) innovative material may tend to be looked upon with suspicion or as a threat to the system, whereas hospitals stress improvements in technology.

□ The clinic is located within the New York Association for the Blind in its Medical Department and is responsible to the general administrative plan of the agency. There are two examining rooms and two follow-up rooms. Each room is self-contained, quiet, and away from the main thoroughfare. The examining rooms are equipped with standard diagnostic ophthalmic instruments and low vision aids consisting of spectacles, magnifiers, and telescopes from leading manufacturers (*Catalogue of optical aids*, 1972). Each follow-up room has a work table with a non-glare, light brown formica top, lamps, reading material in magnetic plastic holders on the wall, writing equipment, a peg board displaying the most used optical aids arranged in order of diopters, a spectacle kit, and a closed-circuit television reading aid. An adequate examination can be done in a room which is ten feet in one of its dimensions.

The medical director is an ophthalmologist who functions as a clinician and instructor. She works with the administrator in analyzing the overall functioning of the clinic, including problems, policy statements, investigation of aids, communication with other clinics, and consulting on specific cases on demand.

The administrator of our Low Vision Service is a registered nurse. She has the typical problems of coordinating a service made up of part-time consultants. To synchronize multiple clinic sessions, resident teaching sessions, in-service programs, and seminars is a full-time job. General administrative duties include doing the annual budget, keeping statistics, ordering and maintaining equipment, and seeing that the clinic runs smoothly. The administrator and director have regularly scheduled meetings to keep up with the administrative plans, the medical policies, and the problems that arise in day-to-day functioning. The administrative assistant is a skilled secretary who also assumes the responsibility for the support staff and assists the administrator in handling the many details of the clinic's program.

Positive features

Negative features

Clinic Structure

Clinic administration

Administrator

The low vision ophthalmological staff consists of six ophthalmologists who each examine patients one half-day a week and instruct residents in ophthalmology in low vision. In addition, there is an ophthalmologist on call for extra clinics or vacation rotations. (This person is preferably a recent graduate from a resident training program). The ophthalmologists see all new patients and are responsible for confirming diagnosis by appropriate diagnostic techniques. If there is evidence of active pathology, recent changes in acuity, or need for further diagnostic work-up, the low vision examination is discontinued and the patient is referred back to his own ophthalmologist. No treatment is done in the clinic. The ophthalmologist is responsible for diagnostic evaluation and interpretation of eye pathology and terminology to the staff, particularly the relationship of pathology to the types of aids. He makes an initial suggestion of aids to be tried in the instruction period.

Ophthalmologists

The Lighthouse optometric staff sees patients two half-days a week and instructs optometry students in low vision aids. A program is currently in operation (since September 1974) with one staff and one consulting optometrist from the New York College of Optometry. The goal has been to incorporate an optometrist into the clinic as a clinician and instructor in optical principals relating to aids and equipment. The optometrists will be guided by the same referral principals as the ophthalmologist, namely: 1) to help review factors involved in aid-related failure; 2) to advise on special aids including the biopic telescope; and 3) to help train the staff in accurate selection of types of aids. Staff refers patients who need complex or specially made aids. Given a reasonable amount of interaction and definition of roles, there is no reason why ophthalmologists and optometrists cannot function to their mutual advantage in a low vision clinic.

Optometric staff

The low vision assistants in our clinic are five nurses with a background in public health, one of whom also functions as the administrator of low vision services. The nursing staff has been trained by ophthalmologists to function as low vision assistants in addition to their duties in the overall health protection of the agency's clients. As low vision assistants, they pointed up the original need for, and have been responsible for, the development of the follow-up and aid loan programs. The situation in the Lighthouse clinic is unique in that the nurses who function as low vision assistants have had an unusual amount of experience in low vision work and a great deal of exposure to the special problems of low vision patients. Other clinics will gravitate toward their own description of this important staff member and may draw from many other professional groups.

Low vision assistants

The registrar has a responsible position which involves not only making appointments but also filling out initial registration forms. After a patient is examined, the registrar checks the chart to be sure the data are complete. From this data the statistical card may then be set up, the information for referral forms and letters may be transmitted accurately, and the medical payment forms can be filled in. Our Medical Department has a receptionist who assists the registrar and helps out wherever she is needed. In our busy clinic, volun-

Registrar, receptionist, volunteers

teers perform many practical and helpful assignments. They also fill a useful social function, making patients and visitors comfortable.

□ The Optical Aids Service is separate from the low vision clinic. From its original intent to supply the clinic with a few aids, it grew to be a central source of optical aids for clinics and practitioners all over the world. Aids are sold by prescription to clinics, doctors, and patients, including our own clinic patients whose only advantage is proximity. The manager functions as a supplier of all optical aids that have been clinically tested and recommended by our clinicians. The department is a distributor for Bausch & Lomb, COIL, American Optical Company, Selsi, and Keeler. Many lenses are stocked as single items from small manufacturers. An assistant and a billing and order clerk round out a staff required to cope with the ever-increasing volume of orders.

Special services are available to the clinic on a consultation basis, including: 1) staff internist, pediatrician, psychiatrist (part-time); 2) psychologists who administer tests, assist in setting up questionnaires for research projects, and evaluate reading ability on a closed-circuit television reading aid (some of the psychological testing is done on the CCTV); 3) audiologist (part-time); 4) social workers, available for casework and group work; 5) orientation and mobility service; 6) rehabilitation service; 7) library services; and 8) recreation services.

□ The clinic is supported by the Lighthouse. While the agency has never charged a fee for clinic services, this policy has been recognized by the Board of Directors as unrealistic. They have therefore authorized a fee schedule to be worked out in accordance with third-party payment procedures and this schedule is expected to be put into effect shortly.

The Optical Aids Service provides some pre-mounted spectacle aids, hand and stand magnifiers, and loupes. When there is a prescription involved, a patient is sent to a local optician, preferably one who is familiar with low vision aids. Designs for Vision or Keeler prescriptions are ordered through a local optician or directly from the company (*Catalogue of optical aids*, 1972).

Research projects are incorporated into the regular clinic structure in the clinic of the doctor initiating the program.

□ The staff ophthalmologist is responsible for confirming diagnoses by report, history, observations, and examination (including dilation of the pupil and applanation tonometry as needed). The low vision examination also includes history; distance vision acuity testing; near vision acuity testing; examination of external ocular structures; ophthalmoscopic (funduscopy) examination (direct and indirect); biomicroscopy (slit lamp examination) as needed; visual fields examination on tangent screen, perimeter, and Amsler Grid as required by an individual case; color vision testing; refraction; prescription of special lenses, aids, and devices; and recommendations for training and instruction to be carried out by the low vision assistant.

Low vision aids, as they are commonly called, are devices that allow a person with subnormal vision to appreciate an enlarged image. Magnifying, or convex, lenses may be set in a spectacle frame, held in the hand, or placed di-

Optical Aids Service

Special services

Funding

Examination of the Low Vision Patient

Prescription of aids

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Optical/Aids Service

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Prescription of aids

rectly on a page. A telescope is another type of optical device used in low vision for distance and reading. Closed-circuit television provides electronic magnification for reading and writing. All of these aids are prescribed or made available for trial for patients seen by the Low Vision Service. Aids are prescribed according to the type of eye disease, the severity of the pathology, and the patient's need.

Spectacles make up the largest proportion of low vision aids prescribed or given out on a trial basis, with hand magnifiers and telescopes next in that order. The clinic also maintains five of the currently available closed-circuit television aids so that patients who have heard about them or whose doctors have recommended their possible use come in to try the systems and learn the limitations inherent in the devices before they buy such an expensive aid. CCTV is prescribed for patients whose acuity is too poor to benefit from an optical aid or for those who have a particular need to supplement their optical aid with another type of magnification (students, job requirements). Reading speed may be somewhat greater for specific types of vision loss, especially restricted fields. For vocational use, CCTV may enhance employability. However, television is never considered until the complete low vision examination has explored the use of all of the other types of aids. More patients reject television after a thorough trial than accept it. It should be prescribed only after thorough analysis of the case, adequate trial, and a period of training.

☐ After the examination and a tentative prescription, which takes about 40 minutes, the assistant takes the patient (who is generally not too fatigued) to the follow-up room. This instruction period starts with the type of aid suggested by the examiner. During this time with the assistant, the patient is also encouraged to express his doubts and needs in an informal manner. At the same time, of course, the worker is constantly assessing the patient's reactions. It may become apparent that the patient cannot accept the prescribed aid. In this case, the assistant begins to explore possible reasons for rejection. The patient cannot be expected to have instant confidence in the process. Sometimes, it takes a while to accept the idea of using vision in a somewhat awkward way.

Intelligent patients whose sight has been adventitiously reduced do not need elaborate reading retraining if they read normally before and want to read again. They do better and respond more quickly to material of interest to them whether it is a personal letter, the *Reader's Digest*, a family photograph, or the *Wall Street Journal*. It is not necessary to restrict an eager patient to reading ten minutes a day when he may be able to read eight hours. Reading restriction may even subvert our philosophy that reading will not hurt the eye.

It has been our experience that too much time spent with a patient leads to boredom and fatigue. The assistant who sees the patient too many times may develop a relationship requiring the type of counseling and support which is the role of the social worker or of a teacher. Introductory training in the use of aids should be practical and direct, concentrating on the use of the aid and the analysis of the prescription. Is it the correct aid or is another type more suitable?

☐ The system of lending aids was established in 1968 for the purpose of providing patients with an added incentive to explore their need for optical

CCTV reading aids

Follow-up

Training

Limiting training

The Aid Loan System

aids (Faye et al., 1975). The Lighthouse statistics show that the service's success rate rose from 60 to over 80 percent when a loan system was initiated. A basic loan system consists of an assortment of spectacles ranging from +6.00, +8.00, and +10.00 half-eyes (with appropriate base-in prism) through 20 diopter spheres. Above 20 diopters, 6X, 8X and 10X AO microscopic or Igard hyperoculars are used. Our lenses are purchased from the Optical Aids Department at the list price. Hand and stand magnifiers are also available, as are a few telescopes including Designs for Vision 2.2 X and 3 X wide-angle telescopes. The simplest system could run from \$375 to over \$1,000 based on the complexity and number of aids.

The loan system has some built-in pitfalls. For many patients, the idea that they are somehow not "ready" for a prescription may create a lack of confidence or a suspicion that all is not well, particularly if they felt that the aid had helped them. Assistants may tend to use the "loaners" as a substitute for a decision. When both patient and worker become indecisive, the dynamics are lost, the loan library is depleted, and the clinic becomes a maze of too many follow-up patients. The loan system is not a substitute for training. Patients need a certain amount of direction and control before they can be sent home to try their aid. The loan system should not suspend the making of decisions. At some point the worker and doctor have to make a decision about which aid to prescribe. We have found that within two follow-up visits, the average patient will accept or reject what is offered.

Pitfalls of the loan system

Intriguing as it may seem at first glance, a low vision aid loan system should never be established as a service disconnected from a low vision clinic. It should also never be used as a trial-and-error substitute for a low vision examination. In understandable exasperation with the lack of low vision facilities, some educational systems have chosen this round-about route for providing low vision care for partially sighted students. It is dangerous to consider giving low vision aids without professional guidance. The provision of an aid on a trial-and-error basis cannot be isolated from the real possibility of overlooking active pathology or the need for an excellent refraction which might restore vision without a low vision aid. It would be preferable to take the longer route of demanding a low vision service from the community resources.

Not a substitute for examination

The loan system is an integral part of every clinic when it is used to reinforce the doubtful patient or to explore specific situations at home or work. It also serves to set up a definite follow-up period of two weeks for further training and analysis of the way the aid was used. Most patients receive their final prescription at this first follow-up visit. Other patients with more complex problems may have several visits at two-week intervals.

□ The follow-up and loan period is the time during which other services are requested from the social worker or mobility instructor if the patient is having problems. Timing is important in requesting consultations for the patient. Even though he has many unexplored needs, a barrage of services too early may not help him. When too many advisors are involved before the status of the aid is clarified, it may also set up conflicts and confuse the patient. However, it is also important to be alert to the patient's personal problems which may under-

Referral Services

lie and interfere with the successful use of the aid. In some cases, early referrals will be made for patients who need these services *before* they can manage learning to use an aid.

□ Agency-based low vision clinics offer certain advantages to partially sighted people seeking rehabilitation. Obviously, the greater the agency commitment to services for the partially sighted, the stronger the clinic will be. The principle advantage of an agency clinic is easier access to services above and beyond the low vision aid. A low vision clinic can be more effective if the multiple needs of patients can be met with multiple services. Low vision services in hospitals, institutions, and private settings tend to be isolated and may fail if they do no more for patients than prescribe aids. The successful clinic in these settings contracts for other services for the low vision patient. Every low vision clinic will be set up differently, depending on its location, basic clientele, relationship with the eye-care community, and access to funding.

Summary

Catalogue of optical aids. 3d ed. New York: Lighthouse Optical Aids Service, 1972.
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EXAMINATION OF THE LOW VISION PATIENT

A SUMMARY PRESENTED BY THE NEW YORK LIGHTHOUSE LOW VISION CLINIC

Low vision is subnormal acuity or abnormal visual fields resulting from a disorder in the visual system.

A low vision patient is an individual whose visual performance is decreased resulting from an eye disorder.

An optical or low vision aid may be defined as a device that, by virtue of its optical properties, raises the level of visual performance of the low vision patient.

Not everyone with reduced sight is a "low vision patient". The patient's expectations and ability to perform his usual tasks defines him as a person who needs special aids and devices to augment his residual vision. Function determines the need for optical and other aids, and the clinical examination should be directed towards assessment of motivation, skill, and goals.

The primary mode of optical correction for near is the convex lens used in various forms: spectacles, spectacle loupes, hand-held lenses or stands that rest on the page. The second mode of optical correction for distance and near is the telescope. It can be prescribed as a hand-held or a spectacle-mounted device. The third mode of correction uses closed-circuit television adapted for near work.

THE BASIC WORKUP:

Basic diagnostic workups are done, including careful refraction to rule out unsuspected hyperopia, myopia or astigmatism. Albinism, aphakia, dislocated lenses, Keratoconus, and myopia are diseases associated with insufficiently corrected refractive errors. Contact lenses and telescopes are used in addition to conventional spectacle lenses.

Visual acuity for distance may be tested at 20 feet with a projection chart if the vision is 20/100 or better; otherwise, advance the Snellen Chart to 10 feet or less, and record acuity at whatever test distance is used. This figure can be reconverted to the 20 foot equivalent for record keeping.

Near acuity should also be recorded. Use any one of a large variety of near-vision tests (American Optical, Keeler, Lighthouse, Sloan). Test charts use individual letters and indicate distance equivalents. Either distance or near acuity may be used in a simple computation to predict the power of the patient's reading lens.



Dioptric power of the reading lens depends upon the reciprocal of the visual acuity. The reciprocal of the Snellen fraction gives the figure that, in diopters, is the approximate add needed to read Jaeger 5, 20/50, or 1M print. That lens is placed over the distance correction in the trial frame. A near vision chart (one with short words) is brought to the focal distance of the add and the strength adjusted until the patient can read 1M or average print. If small print is required, the lens may need to be increased by 30% or 50%.

Instead of trial case lenses, plus spheres covering any desired range of correction can be premounted in spectacle frames.

The location of a field defect may influence the successful use of magnification. An Amsler Grid can be used to predict response to magnification. If the fixation point is seen, the scotoma is either eccentric or well to the right and the patient will have a good retinal response to magnification. Response is apt to be poor if the fixation area is obliterated.

AIDS FOR NEAR AND INTERMEDIATE:

Most patients with limited vision use the better eye with a monocular correction. A small percentage are capable of using a binocular correction.

SPECTACLES:

Any add from 4 to 20 diopters can be prescribed in a standard plastic monocular lens. Either a full frame may be used, or the lens may be cut down to fit a 1/2-eye frame if unimpeded distance vision is an important consideration.

Aspheric and microscopic doublet lenses are specifically manufactured for monocular adds over 20 D. These lenses are available from 5 to 16X.

For binocular use for patients with symmetric vision loss of 20/200 or better, lenses with converging prisms are useful. Plastic lenses of 6, 8, and 10 diopters for both eyes with appropriate base-in prisms are premounted in 1/2-eye frame.

Special bifocals are expensive. Standard one-piece adds are available to 20 diopters and there are special 25mm bifocal segments as strong as 10X.

CHARACTERISTICS OF SPECTACLES:

Close reading distance is determined by focal distance of the lens; both hands are free to hold reading material; field is the largest of any optical aid.

HAND MAGNIFIERS:

Hand magnifiers cover a range of power from 3 to 68 diopters. However, the most common prescriptions are in the range between 5 and 20 diopters. They are familiar devices that are easy to carry and easy to use for many short-term tasks. Patients use them to augment current corrections in order to read small print. If a person cannot tolerate the full spectacle correction, the amount may be divided between a spectacle and hand magnifier. A hand-held lens may be the initial prescription for patients who have difficulty adjusting to high plus reading spectacles or for children to use in classrooms for small print or detailed work.

CHARACTERISTICS OF HAND MAGNIFIERS:

Greater eye-to-lens distance increases the reading range and comfort; may be difficult to hold in focus (tremors or arthritis); smaller field than spectacle; high rate of acceptance as a prescription.

STAND MAGNIFIERS:

Fixed-focus stands are available from 4 to 30 diopters and focusable stands from 18 to 53 diopters. Stand magnifiers are prescribed for patients with tremors, restricted arm or hand motion, and for patients with reduced peripheral field or perimacular scotomas. Fixed-focus stands require about 2.5 diopters of accommodation or reading add to see the image clearly.

CHARACTERISTICS OF STAND MAGNIFIERS:

Greater eye-to-lens distance than a spectacle but less than a hand magnifier; easier to hold than a hand magnifier; smaller field than a spectacle.

ALL CONVEX LENSES RESTRICT THE READING DISTANCE TO THE FOCAL LENGTH OF THE LENS.

TELESOPES:

Only a telescopic system can increase the working range. An afocal telescope with a reading cap or a surgical loupe

increases the range but decreases the field. This is the aid of choice for patients who must type, read music, or do special vocational tasks. The difficulty in acceptance of telescopic aids is related to the field of vision as well as the relatively limited depth of focus at the near point. A properly trained patient can adjust to these restrictions.

ACCESSORY AIDS:

It is important to remember that there are many devices that help patients with everyday activities. Among these are large-numeral telephone dials; large-print; black ink marking pens; signature guides and a typoscope to allow reading one or two lines of print at once. This masking device serves both as a training aid and to block glare from the surface of the page of print. Accessory aids may provide patients with more real help than optical aids and should be demonstrated to every low vision individual regardless of the degree of functional loss. For example, lighting is often crucial. In general, an adjustable lamp should be directed on to the page with the source in front of the eye. Some patients require aids with self-contained sources of illumination and many carry pocket flashlights to help them in poorly-lit areas.

CORRECT ILLUMINATION IS AS IMPORTANT AS CORRECT LENSES.

ABSORPTIVE LENSES:

Absorptive lenses should be prescribed for patients whose visual acuity is affected by high levels of illumination and glare. Consider patients with corneal and lens opacities, vitreous debris, a variety of retinal diseases and optic nerve dysfunctions. Needs vary with the individual and the type of disorder.

CLOSED-CIRCUIT TELEVISION:

Closed-circuit television may be useful for people who need more magnification than spectacles can provide, usually in powers above 10X, or for people who need a greater working distance with higher magnification and a larger field than telescopic lenses can offer. Closed-circuit television may also be used as a vocational aid, especially for typing or writing, and for reading with greater ease. Television can be demonstrated to improve concepts of diagrams and pictures. Diseases that impair the peripheral fields such as retinitis pigmentosa, damage to the visual pathways, glaucoma, may respond only to closed circuit television but the device should

be considered for any severely visually-impaired person who wants to continue to read and work.

INSTRUCTION OF THE PATIENT:

Patients need time, instruction and practice to adjust to these new devices. This may be accomplished at the first visit by working with an assistant, a person who can relate as a peer, and who can continue the education process.

In the instruction phase the patient has to learn what low vision aids are and to relate aids to his own interests. The skilled assistant complements the initial history with a deeper probe into the patient's real reasons for the use of the aids. The instruction stage encompasses learning to use aids for daily needs, reading and other tasks including vocational applications if this is a goal.

Following the doctor's examination the low vision assistant takes the patient into a separate room. Family and friends should be included as part of the process.

The instruction room must be quiet and offer a certain degree of privacy. It should be fully equipped for instruction and follow-up.

INSTRUCTION ROOM:

- Hand magnifiers
- Stand magnifiers
- Head-borne aids
- Telescopes
- Closed-circuit T.V.
- Lamps of several varieties
- Printed materials
- Large and regular type
- Foreign language material
- Bold-tip pens.

WHAT DOES THE ASSISTANT DO?

1. Interprets the doctor's recommendations.
2. Translates the doctor's tentative prescription and suggestions into the actual aids or combination of aids and shows the patient the range of aids and allows him to handle aids in various combinations. The patient's reactions are observed.

3. Interprets questions about the aids and instructs in the proper use of the aids using basic simple optics.

4. Reports to the doctor any marked deviation in patient reaction. During the instruction period, the assistant evaluates the patient's reactions, mental attitude, interest, attention span and physical ability to use the aid. Members of the family also participate in the instruction especially since they are to reinforce the instruction during the home training period.

When it seems appropriate, the assistant can suggest and interpret non-optical aids to the patient and discuss the cost of aids.

The final prescription is written when the doctor and assistant agree that the patient is ready.

THE FOLLOW-UP:

The follow-up examination should occur within approximately two weeks at which time the use of the aids is reviewed. Referrals for other services are made if necessary.

CONCLUSION:

Failure for low vision patients may not be the fault of the patient, particularly if they lack the mental or physical ability to follow through or to accept the limitations of what is offered. Failure of the staff to recognize a patient's other medical or emotional problems must also be considered. There are inherent problems within the optical aid itself.

Failure of a patient to adjust may be a reflection on the limitation of optical aids compared with normal vision: the shortened reading distance, slow reading speed, and small reading field. The severity of the eye condition as well as concomitant cerebral or physical difficulties also affect the outcome.

In summary, the visual aid alone does not constitute rehabilitation. Total management is a complex interaction of skilled history taking, expert medical attention, proper instructions, of sensitive social work, of appropriate referrals; all of which add up to a realistic program of help for the patient.



WORKSHOP 1

5th floor

The Adult Patient With Field Defects

GLAUCOMA AND RETINITIS PIGMENTOSA:

Effect of field defects on visual function and aid prescription

Low Vision Clinicians and
Elisabeth Stern, R.N., B.S.
Low Vision Nurse Assistant

MOBILITY: Training a person with peripheral field defects

Janet B. Lurie, M.A.
Mobility Specialist

SOCIAL SERVICES: What the social worker can offer

Jeanne Katz, M.S.W.
Director, Social Services

REHABILITATION: Focusing on job retention

Vito A. Giordano, M.S.
*Director, Rehabilitation and
Educational Services*

WORKSHOP 1 - RECITAL HALL, 5TH FLOOR

THE ADULT PATIENT WITH FIELD DEFECTS

LOW VISION

GLAUCOMA AND RETINITIS PIGMENTOSA

Robert A. Silver, M.D.
Low Vision Clinician

Elisabeth Stern, R.N., B.S.
Low Vision Nurse Assistant

MOBILITY

TRAINING A PERSON WITH PERIPHERAL
FIELD DEFECTS

Janet B. Lurie, M.A.
Supervisor
Orientation and Mobility Services

SOCIAL SERVICES

WHAT THE SOCIAL WORKER CAN OFFER

Jeanne Katz, M.S.W., A.C.S.W.
Director
Social Services

REHABILITATION

FOCUSING ON JOB RETENTION

Vito A. Giordano, M.S.
Director
Rehabilitation & Educational Services

THE NEW YORK LIGHTHOUSE LOW VISION SERVICE

1953 - 1978

The presentation of the clinical material is covered
in the Thursday papers.



TRAINING THE PERSON WITH PERIPHERAL FIELD DEFECTS

Orientation & Mobility began as a formal program in 1960 at Western Michigan University. However, it began before that at the end of World War II with the return of the blinded veterans at the Veterans Administration Hospital in Hines, Illinois.

Orientation can best be described as the manner in which a blind person uses their remaining senses to establish a position in the environment.

Mobility is the end result in what is seen on the street, in a building or on public transportation. It is the ability to move through space safely from one position to another.

Blind or partially-sighted persons can be mobile in any one of three ways. Going on the arm of a friend or a family member, which as you know is called sighted guide, independently negotiating his cane or independently using a dog guide. A fourth possibility is that of the low vision individual who can, using some safety techniques, navigate without the use of a cane or a dog guide.

The Orientation & Mobility Department teaches both blind, and partially-sighted people to be as independent as they desire. Through a series of carefully planned units, the student is taught the pre-cane skills of sighted guide, trailing, protective techniques for independent movement within both familiar and unfamiliar areas. In this first unit tactility and sound localization begin. Locating dropped objects on a large floor, finding a misplaced object on a table or moving around a group of people who are perhaps waiting for an elevator are some of the events that take place here. It is in this section where social skills are retaught, if necessary. Does a blind person extend his hand when he is introduced to someone? At this time, often the first time in months to years, that a visually-impaired person will go from one place to another alone in a building that is unfamiliar to him.

The next section, after pre-cane skills are completed, is that of cane use. Here a student learns the proper position and movement of the cane to tasks such as walking in a straight line, clearing around obstacles and probably the most frightening thing for a visually-impaired person, ascending and descending stairs.

When the cane techniques are mastered inside the building, the next step is outside. Smooth tile floors are not quite the same as rough, broken-up sidewalks and inside noises cannot compare to the sounds of the city. Our students begin their outdoor training in quiet neighborhoods and progress to more heavily trafficked ones.

Orientation techniques which began in the first unit are even more essential now. "How do I know when I am coming to a corner? Which direction am I facing and what direction do I want to go?" are all questions new students ask on their initial excursions. In New York City, a blind person can determine their position by the traffic flow because, as a rule, all even-numbered streets run east and all odd-numbered streets run west. The avenues, at least in most of Manhattan, flow in a prescribed pattern and if the student knows where he was when he began and has "mentally mapped" the route that he intends to traverse, the actual movement to the destination becomes mechanical.

How does a blind person cross a street? Well, to back up just a bit, a blind traveler is always aware of the traffic around him. As he approaches the corner, he should know which traffic is moving. In Mobility, we refer to the traffic as either parallel or moving in the same direction with the student, or perpendicular--moving against him. Our students are taught to cross with the initial pull of parallel traffic so that they have the full cycle to get across the street. Of course the student has the option to solicit aid to cross the street if he feels a particular crossing is too difficult because of location or construction noises. Some of my students are only able to cross the street with assistance because of hearing difficulties, poor judgment or fear.

Once a student is ready, which is a joint decision between student and instructor, the next unit is one of locating objectives. It could be local stores in the student's home neighborhood, places of interest in the area. In this section the student gets even more exposure to social situations, "How do I go into a super market and get what I want?", or "Can I still shop at Alexander's?"

Objectives get further and further away which necessitates the learning of buses and/or trains. There are no additional skills to learn to ride buses or subways. By the time a student is ready for this section, techniques have been mastered. Climbing stairs onto a bus or into a subway station uses the same method that has been taught earlier. Locating a curb is more difficult



because it is usually only three or four inches high than locating the subway pit which is four feet deep. What is needed for travel on public transportation is the proper skills for dealing with the public. How do you get the right information from a rushing commuter? How will the student know when to get off the bus? Asking the correct person is half the battle. If he asks the bus driver to remind him, and he makes sure that he reminds the driver again before they get to the stop, the driver will remember that the student is on the bus. Being familiar with an area always makes travel for a visually-impaired person easier but the commonalities of various areas of techniques allow that person to travel independently if he so desires.

LOW VISION TRAVELER:

Partially-sighted traveler, depending on the amount of his remaining vision, must be assessed individually as are all our students. However, for the partially-sighted student the mobility instructor is more concerned with how effectively is the remaining vision being used.

Now, the partially-sighted student may not have to go through the entire set of units described previously unless there is a specific need for it, for instance, a person with Retinitis Pigmentosa who cannot function at night, might need to work on sighted-guide techniques for those times when he goes to restaurants or theaters.

The technique of crossing a street would not be entirely different for a partially-sighted person as they are for a functionally-blind student. Some people with limited acuities cannot see the traffic light so they rely on the movement of pedestrians to let them know when to cross. This practice is particularly dangerous in New York City where jay walking is prevalent. Correct way for this client to cross the street is to watch for the traffic to move in the direction in which they want to cross. If the parallel traffic is in their favor, they get off the corner at the beginning of the light (essential for elderly students) then they are crossing safely.

Curbs present another problem for people with restricted vision. How does a partially-sighted person know that they are at a curb until it is too late? One suggestion that I make to my clients is to follow someone down the street who happens to have on either a bright color which is easily discernible or someone with a white shirt against a dark jacket. When that particular person steps off the curb, the collar will get lower. Another

suggestion is to look for obstacles that are always found around the curbs, traffic light poles, fire hydrants and most noticeably cross-walk lines. Since curbs often blend into the street, low vision clients can tell by where the crosswalk lines begin, just where to step down and reversing the process for up curbs works equally as well.

Judging curb depths is often a problem for the low vision client who does not use a cane. For down curbs, I recommend the client make a quick scan of the cars parked along the curb and look specifically for the tires. By seeing how much tire is covered by the curb, the client can estimate how deep the curb is. Up curbs, the method that works best with my students is to look for the base of a pole or a traffic light as they approach the curb and again estimate the height of that particular base from the street on which they are standing. Some clients, however, prefer to just take an exaggerated high step.

Perhaps the most important thing that a mobility instructor works on with the low vision client is body position. Most clients with limited vision walk with their heads down and look at each step they take. Some clients even persist on walking with their heads down even when their vision is such that they cannot see their next step. What this body position does is to promote falling. If a client stumbles or loses their balance, in this position with the upper torso bent forward, a wrong step will carry the body forward with the client's weight acting as momentum. What we encourage our students to do is to stand straight, looking ahead for any on-coming obstacles and avoid those obstacles when they are first noticed. Before beginning, the client should glance down from his feet, then look out to where his vision is no longer useful, and check for any holes or broken sidewalks. Client should take note of where along the sidewalk the pedestrians are moving. This is particularly helpful in areas where construction is known of in advance.

As the client walks down the street with his newly corrected posture, he is constantly aware of: 1) up-coming obstacles because he is avoiding them when they are first noticed, 2) broken sidewalks because he has checked out the new sidewalk as he approaches it and 3) he is observing other pedestrians so that he may quickly discern the easiest route down the street.

EVALUATION PROCESS

As a mobility instructor, there is certain things that I look for before I see a new client. First I check the medical form to see whether the client is physically able to handle the rigors of the mobility course. Secondly, I look for the eye report. What I am specifically interested in is the disease which causes the visual disorder and most importantly is a thorough report on the visual fields of the client. As some of you have probably noticed that first on my list was not visual acuity. Acuity is important but it does not by itself give me an adequate assessment of visual functioning. A 20/70 visual acuity will tell me that the client can probably see a street sign but 20/70 with a 3° field tells me that he probably can't find that street sign.

If you have a patient with a field loss, the most beneficial thing that you give the mobility instructor is the chart of the fields. If there are islands of vision located within a depressed periphery, please plot them also. Mobility instructor can do a quick confrontation field on the client but it is not adequate enough. Probably one of the more distressing things that we see is when the ophthalmologist or optometrist will go to the trouble of filling out an eye report and forget to fill in the field chart.

Low vision clients are given a functional evaluation. It involves the client being observed under actual travel situations and conditions. Those clients who have Retinitis Pigmentosa or Glaucoma may be seen on sunny days or at night time if that is when they do their traveling. There is no point in evaluating the client when he is functioning at a maximum level. We often reschedule evaluation dates and pray that the weather will be appropriate for that particular client's disability. Again, sunny days adversely affect clients with Retinitis Pigmentosa or Glaucoma.

We plan our evaluation routes to include movement through sunny and shady areas and we note the pace at which the client walks through both of them. We have clients cross numerous streets with traffic coming from all directions as well as one-way streets. We like to see clients deliberating on the best direction in which to cross the street because it shows thought for their own safety. Including also in our evaluation is part of a route which will send the client through an area which has a heavy pedestrian use. What we are looking for here is how the client moves through jammed space. Is there a particular side in which

the client may be repeatedly hit? Is he scanning? Does he trip over or on objects of a particular height?

Our department is very concerned with the affects of glare and bright sunlight on the client's performance. For those clients who are bothered by glare or sun, we do a thorough sunwear evaluation.

Selection of sunwear to be used during this evaluation is usually based on whether the client has a distance prescription. Certain sunwear fit only with glasses and other choices are available for those clients who do not wear a distance prescription.

For each pair of glasses and each aid tried, the client should look at a specific object and take note of the sharpness of the image. He should then walk a route which has the client moving towards the sun as well as away from it. The thing to remember is that glasses that may be effective going into the sun can be too dark when walking away from it. The client is questioned as to the clarity and sharpness of the object seen. The same procedure is repeated for each different aid tried. If a preference for one particular aid is found, that aid is tried again later without any specific attention being brought to the fact that this was the aid of choice before. What the instructor is looking for is the consistent response to the same aid.

One thing that our department checks for is that if a client was able to read a street sign without the sunwear on a day when maximum visual functioning took place, then the sunglasses that are ultimately selected should not reduce his ability to any great extent.

Some of the questions asked by our staff when our client is being evaluated for sunwear are:

- 1) Does the color of the glasses reduce vision?
- 2) Do they block out the glare?
- 3) Are the colors you are looking at distorted with the glasses on?
- 4) Is the sharpness of the image reduced?
- 5) Are they comfortable to wear?

One final comment on sunwear selection. The client always has an option to select no sunwear. In many cases all that is really needed to stop the affects of the overhead sun is a hat with a large brim or visor which is used by tennis players or golfers.

The client with the peripheral field defect is always the one you talk to specifically about sun/glare difficulties. I have had clients with Glaucoma, Retinitis Pigmentosa and Diabetes who have been so badly affected by sunlight that they did not leave their homes after 11 a.m. These people lose the major part of the day because they remain inside until 4 p.m. when the sun is not quite as bright. Include this difficulty with those clients who have night blindness and you find that many of them hibernate almost an entire day!

TELESOPES:

It has been my experience that those low vision clients who live in the New York City area do not find a telescope useful for travel purposes because if you remain oriented you always know where you are going and don't have to stop to check the street signs. However, if you are like me and get lost going around a corner, a monocular is a good idea.

A person with a peripheral field defect would benefit from a monocular with a low power. You would not give this client a high powered aid because it would magnify what he is looking for right out of his usable field. One benefit of the lower powered monocular is the large exit pupil of the aid. The person with a small field usually finds it difficult to line up his field with the smaller opening of the higher-power monoculars. One student of mine explained to me how he lined up his distance aid. He would hold the aid at arms' length away from him and shift the aid around until he was able to see the light coming in from the end of the aid. When he spotted that light, he brought the aid up to his eye and at that time he started to scan the environment for what he was looking for, usually a street sign.

People with macula disorders have a tendency to select telescopes with a higher degree of power. The drawback to a high-powered telescope is that the field within them are smaller and since less of the environment is seen, it becomes difficult to orient yourself or to even locate the sign for which you are looking.

I use two methods when teaching someone how to spot with a telescope. The first method is to locate the sign and street number that you wish to see with the unaided eye, they then are to bring the monocular up. A portion of the sign or building number is usually seen through the monocular and it is relatively easy to read then. If it turns out that the sign has not been "caught" in the field of the telescope, the area that the client is searching in is usually nearby and with a minimum of scanning it can be found through the telescope.

The second method that I use with my students who are looking for a street sign is to have them stand on the corner facing the opposite curb using the telescope. They are to begin at their feet and visually traverse the street or follow across in a cross walk line to the opposite curb. When the opposite corner is located the client horizontally scans along the curb until a pole is noticed. Each pole is searched vertically with the telescope until the proper sign is located. The first method is particularly effective with low-powered monoculars; the second method is more effective with higher-powered aids.

For some clients the mobility instructor requests a monocular that clips onto the patient's glasses because elderly clients often have hand tremors and they cannot keep a small monocular steady. We have been known to suggest one aid over another because of size and shape as well as power. Clip-on monoculars are also effective for clients who have difficulty focusing the aid. Focusing is done for each object that is to be viewed unless the streets are regular and the client becomes accustomed to exactly where to stop to look for that particular street sign. Most of our monoculars have a rough portion on the barrel so that the area used to focus is easily felt. Some clients do better with a fixed-focus monocular due to tremor, age or inability to focus the aid effectively. One tip in using the monocular effectively is to place the monocular against the eye and have one finger extending onto the forehead so that the monocular will remain steady while the client is viewing through it.

WHO NEEDS A CANE?

Low vision clients are particularly resistant to using a cane. In many cases those clients with macular involvement do not need a cane because their peripheries are intact. Since it is the peripheral vision that is able to detect large obstacles and movement, these clients as a rule have little difficulty getting around. On the other hand, the person with the peripheral field defect often has good remaining central acuity and refuses to acknowledge that they cannot see everything. It is this client who needs Orientation & Mobility.

I personally base my decisions as to who needs a cane by a few things. One is whether the client can see beyond the 3' that the cane will afford him, provided there is no field defect. Second thought is to how much of a field defect the client actually has. I have had students with as little as 10° field function safely without the use of a cane whereas others with

the same field cannot function safely at all. Thirdly is the question that I ask the client, whether they need a cane for identification, if they do desire to carry a cane. Some clients who do not appear visually impaired often have problems soliciting aid from the public because of this, they are then given one provided they are legally blind.

Unless there are definite times that a low vision client cannot see, the cane technique they are taught is one that is used selectively; for instance, only in unfamiliar areas, or on stairs, only at corners to make sure that the traffic can tell that a visually-impaired person is crossing. For this type of instruction, we usually provide a folding cane.

Most of my clients who have peripheral field defects are taught how to use a cane in a diagonal technique. This involves holding it across their body and also in front of them so that up-coming curbs and obstacles can be detected. The cane is diagonal not only to the ground but away from the body. The cane in this position allows the client to use his remaining vision for scanning.

Scanning is the turning of the head or eyes so as to look and see any obstacles that might interfere with the student's person. For some students, eye movement is sufficient enough to see beyond the width of their bodies. This is the area that is of concern to them. Other students find that moving the entire head is more effective particularly when they are involved in a dynamic environment. In static situations such as at a dinner table or seated at a desk searching for something, an eye movement is usually enough.

When a functional evaluation is done on the client with peripheral field defects, and you ask them to locate a mailbox, what the instructor will often see is the client staring directly at the mailbox and he is oblivious to anything else around him. What the mobility instructor works on is lessons to promote memory and also awareness of time-distance judgment. The client locates the mailbox, but rather than staring directly at it, he scans around him and comes back to the object which is sought. The client develops a sense of "Where am I in relation to that item and how long will it take me to get to it?" The time-distance judgment becomes almost automatic with repeated lessons which give exposure to this sort of thing.

Another section of instruction for the client with restricted fields is called "visual closure". Visual closure exercises deal with developing the client's ability to perceive part of an

object visually and mentally complete the picture needed for recognition. Lessons in visual closure have immediate feed-back built into them because the client learns how to determine an entire object from the small part of the object by just scanning vertically or horizontally to see the entire thing.

In my discussion here, the obvious field defect that I have neglected to mention is that of hemianopsia. A person with a homonymous defect to either the right or left will be hindered with his mobility. The client is taught effective scanning techniques to compensate for the side of his vision that is not functioning. A cane is usually introduced in a modified diagonal technique to protect the impaired side. Clients who have inferior depressions can do some limited scanning vertically, however, this vision is more effective when used to compensate for obstacles in the student's path that are seen at a distance. If the client happens on an obstacle that he did not see, it could be quite dangerous. For this type of client, a diagonal technique might not be effective because the only feedback the client would get from the cane is where the tip touches the ground and in this position (diagonal) the tip does not move. A more extensive cane technique is needed for the client with an inferior depression.

Superior field depression interfere with mobility in terms of overhang such as "P" shaped telephone poles, canopies and awnings. These clients may not even need a cane but may benefit from lessons that deal with protective skills and both vertical and horizontal scanning.

What is always a consideration with the client who has the hemianopsia is the cause of the defect. Those clients whose field depressions are caused by a stroke are not good candidates for Orientation & Mobility due to the damage that has been done to the brain.

One topic that I would like to touch on briefly that is not related to peripheral field defects is the subject of eccentric viewing. We teach those students, usually those with macular involvement, to use their remaining peripheral vision by literally looking at things almost "off center". Some clients feel strange about looking at someone or something when they do not appear to be looking directly at them. This is an uncomfortable feeling that must be overcome because although the client does not see things clearly any longer, there is a portion of the remaining vision which the object looks clearest. These clients should be encouraged to use effectively whatever vision they have. This

statement is true of any low vision client. If you have the vision and it is not detrimental to traveling, it should be used.

In summary, Orientation and Mobility for the person with low vision is taught on a one-to-one basis. It is a technique that is tailored to the individual needs of each client and their specific visual disorder. It is a system of units in which one is built upon the success of the previous lesson. Confidence is gained and independence and safety are promoted.

Janet B. Lurie, M.A.
Senior Instructor
Orientation & Mobility Department

10/25/78
JBL:mm

WHAT THE SOCIAL WORKER CAN OFFER

There is available to the doctor with a low vision practice, and to his patient, a network of rehabilitation services. It is the social worker's role as part of that network and as a support service to the doctor that I will be addressing myself here today.

A typical low vision patient with field loss may be a man in his fifties who is losing vision and whose job is in jeopardy because of it. He may have children in college or ready to enter college, a mortgage on his house, a wife immobilized by the bleak prospect of all that would be lost by loss of income and the implications of this for the future.

The Low Vision Specialist prescribes aids which may enhance this patient's vision in a limited way. For the patient, however, the threat of job loss may still be there, bills must still be paid, children's education provided for, equilibrium in family and marital relationships must be maintained - somehow.

When a way of life is threatened, the impact on the individual and his family can be profound and result in attitudes of helplessness and despair. He may totally reject the aid ("if an aid can't solve my problem, then I don't want it"). He may become angry and irritable with the doctor whose realistic professional limitations prevent him from restoring what was lost but in whom the patient has placed his complete faith as a miracle worker. Or he may react with uncharacteristic indifference or alarming resignation. Whatever the overt manifestations of this patient's disappointment and subsequent anxiety about the future, there is inherent in them a pull on the doctor as "the expert" to do something, which, with the Low Vision Specialist generally takes the form of - "Give me an aid that will restore my vision". The sense of helplessness engendered in the practitioner when faced with the demand of the patient for infinite wisdom can be as profound as that of the patient, for people in the helping professions are there out of a desire to relieve pain, to restore functioning, to heal, and their demands on themselves can sometimes be as unrealistic as the demands of those asking for solutions.

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This concept has particular relevance for the issues addressed in this Symposium and, in particular, for the doctor with the patient for whom low vision aids do not in themselves meet the

pressing needs of his patient. For such a patient, there is a wide array of professional specialties available which, in conjunction with Low Vision Services, can provide the bridge between what the Low Vision Specialist can realistically offer and what his patient needs. Each of these services, provided in isolation can, as in Low Vision, often give only a partial solution and it is the recognition of this that leads to the development of the rehabilitation team as the provider of a total service to the low vision patient.

The social worker, as part of that team, carries out more than one function, the most critical of which is the intake assessment. An intake assessment begins with the worker's call-back to the referral source and/or client and ends with a mutual decision regarding future contact with the agency. Activity may vary from a telephone consultation to one or several interviews with the client and his family.

It is not necessary for the doctor (or for that matter, any referral source) to have all or any answers to a problem in order to discuss a referral for rehabilitation services with his patient. He may want to discuss the possibility of referral with the intake worker before he approaches his patient with such a suggestion, in order to have some assurance that he is moving in the right direction and is not sending his patient on a futile errand. We find, in general, that it is best in discussing referral to offer the opportunity for an exploration of rehabilitation resources as they relate to patient need and, if the patient is willing, to leave the patient and intake worker together to come to a realistic plan for meeting his goals.

Credence is given a client's view of his needs and how they may best be met. At the same time, if we act precipitously by filling the prescription the client has written for himself without an opportunity for an assessment of his total situation, we may be providing a very limited, fragmentary service and, more importantly, depriving the client of an awareness of all the options available to him. Given options which are soundly related to an understanding of his personality, his life style, an examination of strengths and resources he can call upon from within himself, his family and/or social networks, he is in a position to make a choice. Whether he elects to accept our recommendations or reject or postpone them, is a matter of personal decision for him and his choice is respected.

A thorough assessment can mobilize an otherwise immobilized individual and family to find their own solutions or to accept a referral for rehabilitation training. A "rejection" of services need not be seen as final - what an individual is not ready for at one time in his life he may be ready for at some time in the future when time itself or the circumstances of his life may provide the impetus for a different kind of choice. As important as the acceptance of the client's choice, is the assurance that rejection of service does not close doors and that he has the right to return at any time.

During the course of the assessment, the worker, with the client's consent may be consulting with other involved professionals (medical, other agencies, etc.) in order to better understand the implications of their reports and to integrate their findings into our understanding of the client. In instances in which the client has not had a low vision examination, one would be arranged for, since the prescription of an aid may be all that is necessary or, if not, may make a significant difference in future rehabilitation planning.

Casework Counselling may be offered or requested around individual, family or marital problems which may be acute and reactive to, or chronic and intensified by, the visual loss. Family dysfunction is painful, and disorganizing and can have a negative effect on the client's ability to utilize services at any stage of his contact. Conversely, an individual's success in the rehabilitation process may be all that is needed to restore family balance.

The social worker working as part of a rehabilitation team is, as are other members of the team, constantly aware of the limits defined by his particular area of expertise. It is those limits which make it imperative for openness and reciprocity in communication so that any plan arrived at with the client is a total plan related to an understanding of the total client.

Jeanne Katz, M.S.W.
Director
Social Services

October 25, 1978
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REHABILITATION FOCUSING ON JOB RETENTION

The patient, age 42, was seen in the Low Vision Service because he is finding it increasingly difficult to function as the manager of a large factory. He has Retinitis Pigmentosa, with a 20⁰ visual field. His best visual acuity is 20/100 OD and 20/400 OS.

The Low Vision Service recommends:

- a +8 spectacle with 10 base-in prism OU
- a +7 COIL hand magnifier
- a +9 Jupiter Standlupe and
- a 2.8X Hand-held Selsi telescope (on loan) for this patient.

As he begins to reveal some of his other difficulties and frustrations, the Low Vision Clinician senses a need for counseling and services by other professionals. The client is referred to a rehabilitation counselor for further evaluation.

After an in-depth assessment of the client's functional responsibilities and a systematic analysis of his daily work routine, a plan is developed.

A consultation is arranged for the client with a rehabilitation teaching specialist, a visually impaired administrator and a partially sighted manager of a sheltered workshop. Some of the recommendations by rehabilitation consultants included the use of a hand writing guide, a black felt pen to provide greater contrast and the use of technical sensory aids and equipment. A ready access telephone directory and a filing system with a large print index were also recommended for his use.

This early intervention of rehabilitation resources made it possible for this client to continue to function effectively in his work environment.

The foresight, concern and the knowledge of available resources enabled the Low Vision Clinician to positively affect job retention.

Job retention continues to be a major concern to the field of rehabilitation. However, the client is seldom referred for rehabilitation services until after the client has been terminated from his employment or he is in an "in extremis" situation.

Early intervention is particularly important for a client who is having difficulty functioning on his job.

Employers are generally receptive to intervention by a rehabilitation specialist who will assist an employee to adapt or modify a work situation.

It is easier to help a person retain a job by working within his existing job environment than to retrain a client and begin to seek employment with a new organization.

The low vision practitioner may be the first person contacted by an individual who is faced with the initial stages of visual loss. Often, this loss begins to impact upon his social life, family and his job. Fearful of the consequences, he may not reveal his feelings to his family, friends, colleagues on the job or his employment supervisor. It is important, therefore, for the Low Vision staff to learn whether the client is receiving any of the supportive services which may assist him in keeping his life intact.

The Low Vision Clinician should be sensitive to the needs of the employed patient who has a visual loss and becomes fearful of losing his job. Under these circumstances, the patient may be trying to mask his problem avoiding the reality of a situation. If the eye condition is progressive as in Glaucoma and Retinitis Pigmentosa, he may be dreading additional losses certain that at some point he may be unable to work.

Faced with this series of circumstances, the patient is filled with anxiety, and frustration and clear thinking is often difficult.

It is particularly important for these patients to have ready access to a rehabilitation specialist who can

The on-site teacher/evaluator will be available to the client and the work supervisor until such time as they are all comfortable in the work environment. He provides guidance and support to the work supervisor. He may also be the source through which other supportive services may be provided.

An assessment of the work environment by a Low Vision specialist may be recommended or required. Reader Services may be needed as the demands of the job increase or the eye condition becomes progressively worse.

The burden of responsibility and support is shared by the client, the work supervisor and the teacher/evaluator. During this period of adjustment, the work supervisor and the other employees should begin to feel more at ease with the situation. Tensions and anxieties may begin to subside and, hopefully, problems which were deemed to be monumental are resolved judiciously by the application of good common sense.

Follow-up services through a periodic monitoring of a client in a job retention situation is an important aspect of a rehabilitation effort. Depending upon the needs of the client and the type of services required, various staff are deployed either to the work site or the client is seen at the rehabilitation center.

Low Vision practitioners must be aware of the dynamics of the rehabilitation process and how each of the interrelated services function. The process may be viewed as a wheel. The hub or focal point is the client. The extent of his involvement and commitment will greatly determine the successful achievement of the rehabilitation goal.

The spokes are representative of the myriad of services and resources available to the client--Low Vision, Social Services, Medical, Vocational Training, Personal Adjustment Training, Education, Recreation--are just some of the disciplines to which a client may be exposed. All of these services are fused together in a closely knit coordinated component to form the perimeter or the outer rim.

In a multi-service agency the process may be more readily recognized. Perhaps, the analogy to a wheel is less discernible to Low Vision practitioners in small or rural communities. However, a knowledge of rehabilitation services and how these services can profoundly affect the Low Vision patient is particularly important to all Low Vision practitioners. It becomes increasingly significant with the client population we are addressing in this workshop. With the adult patient who has Glaucoma or Retinitis Pigmentosa, the prognosis for the retention of usable residual vision may be tenuous at best. Early intervention and the appropriate referral by the Low Vision Clinician may offer the client his first and only opportunity to receive the supportive services which will make it possible for him to remain in a productive work situation.

Equally important is the need for the rehabilitation specialist to have access to the Low Vision service so that a client's vision potential may be maximized in accordance with his social, educational or vocational needs.

Affirmative action has created an environment in which people are becoming more attuned to their obligations to the handicapped. We as the practitioners must, therefore, insure that our clients are given every opportunity to function and compete with their sighted peers. Our commitment and the resources which we have at our disposal can and must be utilized to the fullest extent towards this end.

Vito A. Giordano, M.S., Director
Rehabilitation/Educational Services
10/26/78

TH11:sw

WORKSHOP 2

12th floor

THE YOUNG ADULT PATIENT WITH DIABETES: *Emphasis on pathology, treatment, prognosis and aids*

Low Vision Clinician and
Gayle Farrelly, R.N., B.S.N.
Low Vision Nurse Assistant

MEDICAL: Demonstration of special insulin devices
Katherine N. Hynes, R.N., M.A.
Supervisor, Medical Services

**SOCIAL SERVICES: Impact on patients living with
restrictions**
Susan J. Clewner-Palca, M.S.W.
Social Services

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Gerald Miller, M.A.
Senior Supervisor, Field Services
New York State Commission for the Blind
and Visually Handicapped

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Richard Simms, M.A.
Supervisor, Rehabilitation Instructional Services
Mobility, Communications and Personal Management

WORKSHOP 1 - RECITAL HALL, 5TH FLOOR

THE ADULT PATIENT WITH FIELD DEFECTS

LOW VISION

GLAUCOMA AND RETINITIS PIGMENTOSA

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Low Vision Clinician

Elisabeth Stern, R.N., B.S.
Low Vision Nurse Assistant

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The presentation of the clinical material is covered
in the Thursday papers.

TRAINING THE PERSON WITH PERIPHERAL FIELD DEFECTS

Orientation & Mobility began as a formal program in 1960 at Western Michigan University. However, it began before that at the end of World War II with the return of the blinded veterans at the Veterans Administration Hospital in Hines, Illinois.

Orientation can best be described as the manner in which a blind person uses their remaining senses to establish a position in the environment.

Mobility is the end result in what is seen on the street, in a building or on public transportation. It is the ability to move through space safely from one position to another.

Blind or partially-sighted persons can be mobile in any one of three ways. Going on the arm of a friend or a family member, which as you know is called sighted guide, independently negotiating his cane or independently using a dog guide. A fourth possibility is that of the low vision individual who can, using some safety techniques, navigate without the use of a cane or a dog guide.

The Orientation & Mobility Department teaches both blind, and partially-sighted people to be as independent as they desire. Through a series of carefully planned units, the student is taught the pre-cane skills of sighted guide, trailing, protective techniques for independent movement within both familiar and unfamiliar areas. In this first unit tactility and sound localization begin. Locating dropped objects on a large floor, finding a misplaced object on a table or moving around a group of people who are perhaps waiting for an elevator are some of the events that take place here. It is in this section where social skills are retaught, if necessary. Does a blind person extend his hand when he is introduced to someone? At this time, often the first time in months to years, that a visually-impaired person will go from one place to another alone in a building that is unfamiliar to him.

The next section, after pre-cane skills are completed, is that of cane use. Here a student learns the proper position and movement of the cane to tasks such as walking in a straight line, clearing around obstacles and probably the most frightening thing for a visually-impaired person, ascending and descending stairs.

When the cane techniques are mastered inside the building, the next step is outside. Smooth tile floors are not quite the same as rough, broken-up sidewalks and inside noises cannot compare to the sounds of the city. Our students begin their outdoor training in quiet neighborhoods and progress to more heavily trafficked ones.

Orientation techniques which began in the first unit are even more essential now. "How do I know when I am coming to a corner? Which direction am I facing and what direction do I want to go?" are all questions new students ask on their initial excursions. In New York City, a blind person can determine their position by the traffic flow because, as a rule, all even-numbered streets run east and all odd-numbered streets run west. The avenues, at least in most of Manhattan, flow in a prescribed pattern and if the student knows where he was when he began and has "mentally mapped" the route that he intends to traverse, the actual movement to the destination becomes mechanical.

How does a blind person cross a street? Well, to back up just a bit, a blind traveler is always aware of the traffic around him. As he approaches the corner, he should know which traffic is moving. In Mobility, we refer to the traffic as either parallel or moving in the same direction with the student, or perpendicular--moving against him. Our students are taught to cross with the initial pull of parallel traffic so that they have the full cycle to get across the street. Of course the student has the option to solicit aid to cross the street if he feels a particular crossing is too difficult because of location or construction noises. Some of my students are only able to cross the street with assistance because of hearing difficulties, poor judgment or fear.

Once a student is ready, which is a joint decision between student and instructor, the next unit is one of locating objectives. It could be local stores in the student's home neighborhood, places of interest in the area. In this section the student gets even more exposure to social situations, "How do I go into a super market and get what I want?", or "Can I still shop at Alexander's?"

Objectives get further and further away which necessitates the learning of buses and/or trains. There are no additional skills to learn to ride buses or subways. By the time a student is ready for this section, techniques have been mastered. Climbing stairs onto a bus or into a subway station uses the same method that has been taught earlier. Locating a curb is more difficult

because it is usually only three or four inches high than locating the subway pit which is four feet deep. What is needed for travel on public transportation is the proper skills for dealing with the public. How do you get the right information from a rushing commuter? How will the student know when to get off the bus? Asking the correct person is half the battle. If he asks the bus driver to remind him, and he makes sure that he reminds the driver again before they get to the stop, the driver will remember that the student is on the bus. Being familiar with an area always makes travel for a visually-impaired person easier but the commonalities of various areas of techniques allow that person to travel independently if he so desires.

LOW VISION TRAVELER:

Partially-sighted traveler, depending on the amount of his remaining vision, must be assessed individually as are all our students. However, for the partially-sighted student the mobility instructor is more concerned with how effectively is the remaining vision being used.

Now, the partially-sighted student may not have to go through the entire set of units described previously unless there is a specific need for it, for instance, a person with Retinitis Pigmentosa who cannot function at night, might need to work on sighted-guide techniques for those times when he goes to restaurants or theaters.

The technique of crossing a street would not be entirely different for a partially-sighted person as they are for a functionally-blind student. Some people with limited acuities cannot see the traffic light so they rely on the movement of pedestrians to let them know when to cross. This practice is particularly dangerous in New York City where jay walking is prevalent. Correct way for this client to cross the street is to watch for the traffic to move in the direction in which they want to cross. If the parallel traffic is in their favor, they get off the corner at the beginning of the light (essential for elderly students) then they are crossing safely.

Curbs present another problem for people with restricted vision. How does a partially-sighted person know that they are at a curb until it is too late? One suggestion that I make to my clients is to follow someone down the street who happens to have on either a bright color which is easily discernible or someone with a white shirt against a dark jacket. When that particular person steps off the curb, the collar will get lower. Another

suggestion is to look for obstacles that are always found around the curbs, traffic light poles, fire hydrants and most noticeably cross-walk lines. Since curbs often blend into the street, low vision clients can tell by where the crosswalk lines begin, just where to step down and reversing the process for up curbs works equally as well.

Judging curb depths is often a problem for the low vision client who does not use a cane. For down curbs, I recommend the client make a quick scan of the cars parked along the curb and look specifically for the tires. By seeing how much tire is covered by the curb, the client can estimate how deep the curb is. Up curbs, the method that works best with my students is to look for the base of a pole or a traffic light as they approach the curb and again estimate the height of that particular base from the street on which they are standing. Some clients, however, prefer to just take an exaggerated high step.

Perhaps the most important thing that a mobility instructor works on with the low vision client is body position. Most clients with limited vision walk with their heads down and look at each step they take. Some clients even persist on walking with their heads down even when their vision is such that they cannot see their next step. What this body position does is to promote falling. If a client stumbles or loses their balance, in this position with the upper torso bent forward, a wrong step will carry the body forward with the client's weight acting as momentum. What we encourage our students to do is to stand straight, looking ahead for any on-coming obstacles and avoid those obstacles when they are first noticed. Before beginning, the client should glance down from his feet, then look out to where his vision is no longer useful, and check for any holes or broken sidewalks. Client should take note of where along the sidewalk the pedestrians are moving. This is particularly helpful in areas where construction is known of in advance.

As the client walks down the street with his newly corrected posture, he is constantly aware of: 1) up-coming obstacles because he is avoiding them when they are first noticed, 2) broken sidewalks because he has checked out the new sidewalk as he approaches it and 3) he is observing other pedestrians so that he may quickly discern the easiest route down the street.

EVALUATION PROCESS

As a mobility instructor, there are certain things that I look for before I see a new client. First I check the medical form to see whether the client is physically able to handle the rigors of the mobility course. Secondly, I look for the eye report. What I am specifically interested in is the disease which causes the visual disorder and most importantly is a thorough report on the visual fields of the client. As some of you have probably noticed that first on my list was not visual acuity. Acuity is important but it does not by itself give me an adequate assessment of visual functioning. A 20/70 visual acuity will tell me that the client can probably see a street sign but 20/70 with a 3° field tells me that he probably can't find that street sign.

If you have a patient with a field loss, the most beneficial thing that you give the mobility instructor is the chart of the fields. If there are islands of vision located within a depressed periphery, please plot them also. Mobility instructor can do a quick confrontation field on the client but it is not adequate enough. Probably one of the more distressing things that we see is when the ophthalmologist or optometrist will go to the trouble of filling out an eye report and forget to fill in the field chart.

Low vision clients are given a functional evaluation. It involves the client being observed under actual travel situations and conditions. Those clients who have Retinitis Pigmentosa or Glaucoma may be seen on sunny days or at night time if that is when they do their traveling. There is no point in evaluating the client when he is functioning at a maximum level. We often reschedule evaluation dates and pray that the weather will be appropriate for that particular client's disability. Again, sunny days adversely affect clients with Retinitis Pigmentosa or Glaucoma.

We plan our evaluation routes to include movement through sunny and shady areas and we note the pace at which the client walks through both of them. We have clients cross numerous streets with traffic coming from all directions as well as one-way streets. We like to see clients deliberating on the best direction in which to cross the street because it shows thought for their own safety. Including also in our evaluation is part of a route which will send the client through an area which has a heavy pedestrian use. What we are looking for here is how the client moves through jammed space. Is there a particular side in which

the client may be repeatedly hit? Is he scanning? Does he trip over or on objects of a particular height?

Our department is very concerned with the affects of glare and bright sunlight on the client's performance. For those clients who are bothered by glare or sun, we do a thorough sunwear evaluation.

Selection of sunwear to be used during this evaluation is usually based on whether the client has a distance prescription. Certain sunwear fit only with glasses and other choices are available for those clients who do not wear a distance prescription.

For each pair of glasses and each aid tried, the client should look at a specific object and take note of the sharpness of the image. He should then walk a route which has the client moving towards the sun as well as away from it. The thing to remember is that glasses that may be effective going into the sun can be too dark when walking away from it. The client is questioned as to the clarity and sharpness of the object seen. The same procedure is repeated for each different aid tried. If a preference for one particular aid is found, that aid is tried again later without any specific attention being brought to the fact that this was the aid of choice before. What the instructor is looking for is the consistent response to the same aid.

One thing that our department checks for is that if a client was able to read a street sign without the sunwear on a day when maximum visual functioning took place, then the sunglasses that are ultimately selected should not reduce his ability to any great extent.

Some of the questions asked by our staff when our client is being evaluated for sunwear are:

- 1) Does the color of the glasses reduce vision?
- 2) Do they block out the glare?
- 3) Are the colors you are looking at distorted with the glasses on?
- 4) Is the sharpness of the image reduced?
- 5) Are they comfortable to wear?

One final comment on sunwear selection. The client always has an option to select no sunwear. In many cases all that is really needed to stop the affects of the overhead sun is a hat with a large brim or visor which is used by tennis players or golfers.

The client with the peripheral field defect is always the one you talk to specifically about sun/glare difficulties. I have had clients with Glaucoma, Retinitis Pigmentosa and Diabetes who have been so badly affected by sunlight that they did not leave their homes after 11 a.m. These people lose the major part of the day because they remain inside until 4 p.m. when the sun is not quite as bright. Include this difficulty with those clients who have night blindness and you find that many of them hibernate almost an entire day!

TELESOPES:

It has been my experience that those low vision clients who live in the New York City area do not find a telescope useful for travel purposes because if you remain oriented you always know where you are going and don't have to stop to check the street signs. However, if you are like me and get lost going around a corner, a monocular is a good idea.

A person with a peripheral field defect would benefit from a monocular with a low power. You would not give this client a high powered aid because it would magnify what he is looking for right out of his usable field. One benefit of the lower powered monocular is the large exit pupil of the aid. The person with a small field usually finds it difficult to line up his field with the smaller opening of the higher-power monoculars. One student of mine explained to me how he lined up his distance aid. He would hold the aid at arms' length away from him and shift the aid around until he was able to see the light coming in from the end of the aid. When he spotted that light, he brought the aid up to his eye and at that time he started to scan the environment for what he was looking for, usually a street sign.

People with macula disorders have a tendency to select telescopes with a higher degree of power. The drawback to a high-powered telescope is that the field within them are smaller and since less of the environment is seen, it becomes difficult to orient yourself or to even locate the sign for which you are looking.

I use two methods when teaching someone how to spot with a telescope. The first method is to locate the sign and street number that you wish to see with the unaided eye, they then are to bring the monocular up. A portion of the sign or building number is usually seen through the monocular and it is relatively easy to read then. If it turns out that the sign has not been "caught" in the field of the telescope, the area that the client is searching in is usually nearby and with a minimum of scanning it can be found through the telescope.

The second method that I use with my students who are looking for a street sign is to have them stand on the corner facing the opposite curb using the telescope. They are to begin at their feet and visually traverse the street or follow across in a cross walk line to the opposite curb. When the opposite corner is located the client horizontally scans along the curb until a pole is noticed. Each pole is searched vertically with the telescope until the proper sign is located. The first method is particularly effective with low-powered monoculars; the second method is more effective with higher-powered aids.

For some clients the mobility instructor requests a monocular that clips onto the patient's glasses because elderly clients often have hand tremors and they cannot keep a small monocular steady. We have been known to suggest one aid over another because of size and shape as well as power. Clip-on monoculars are also effective for clients who have difficulty focusing the aid. Focusing is done for each object that is to be viewed unless the streets are regular and the client becomes accustomed to exactly where to stop to look for that particular street sign. Most of our monoculars have a rough portion on the barrel so that the area used to focus is easily felt. Some clients do better with a fixed-focus monocular due to tremor, age or inability to focus the aid effectively. One tip in using the monocular effectively is to place the monocular against the eye and have one finger extending onto the forehead so that the monocular will remain steady while the client is viewing through it.

WHO NEEDS A CANE?

Low vision clients are particularly resistant to using a cane. In many cases those clients with macular involvement do not need a cane because their peripheries are intact. Since it is the peripheral vision that is able to detect large obstacles and movement, these clients as a rule have little difficulty getting around. On the other hand, the person with the peripheral field defect often has good remaining central acuity and refuses to acknowledge that they cannot see everything. It is this client who needs Orientation & Mobility.

I personally base my decisions as to who needs a cane by a few things. One is whether the client can see beyond the 3' that the cane will afford him, provided there is no field defect. Second thought is to how much of a field defect the client actually has. I have had students with as little as 10° field function safely without the use of a cane whereas others with

the same field cannot function safely at all. Thirdly is the question that I ask the client, whether they need a cane for identification, if they do desire to carry a cane, Some clients who do not appear visually impaired often have problems soliciting aid from the public because of this, they are then given one provided they are legally blind.

Unless there are definite times that a low vision client cannot see, the cane technique they are taught is one that is used selectively; for instance, only in unfamiliar areas, or on stairs, only at corners to make sure that the traffic can tell that a visually-impaired person is crossing. For this type of instruction, we usually provide a folding cane.

Most of my clients who have peripheral field defects are taught how to use a cane in a diagonal technique. This involves holding it across their body and also in front of them so that up-coming curbs and obstacles can be detected. The cane is diagonal not only to the ground but away from the body. The cane in this position allows the client to use his remaining vision for scanning.

Scanning is the turning of the head or eyes so as to look and see any obstacles that might interfere with the student's person. For some students, eye movement is sufficient enough to see beyond the width of their bodies. This is the area that is of concern to them. Other students find that moving the entire head is more effective particularly when they are involved in a dynamic environment. In static situations such as at a dinner table or seated at a desk searching for something, an eye movement is usually enough.

When a functional evaluation is done on the client with peripheral field defects, and you ask them to locate a mailbox, what the instructor will often see is the client staring directly at the mailbox and he is oblivious to anything else around him. What the mobility instructor works on is lessons to promote memory and also awareness of time-distance judgment. The client locates the mailbox, but rather than staring directly at it, he scans around him and comes back to the object which is sought. The client develops a sense of "Where am I in relation to that item and how long will it take me to get to it?" The time-distance judgment becomes almost automatic with repeated lessons which give exposure to this sort of thing.

Another section of instruction for the client with restricted fields is called "visual closure". Visual closure exercises deal with developing the client's ability to perceive part of an

object visually and mentally complete the picture needed for recognition. Lessons in visual closure have immediate feed-back built into them because the client learns how to determine an entire object from the small part of the object by just scanning vertically or horizontally to see the entire thing.

In my discussion here, the obvious field defect that I have neglected to mention is that of hemianopsia. A person with a homonymous defect to either the right or left will be hindered with his mobility. The client is taught effective scanning techniques to compensate for the side of his vision that is not functioning. A cane is usually introduced in a modified diagonal technique to protect the impaired side. Clients who have inferior depressions can do some limited scanning vertically, however, this vision is more effective when used to compensate for obstacles in the student's path that are seen at a distance. If the client happens on an obstacle that he did not see, it could be quite dangerous. For this type of client, a diagonal technique might not be effective because the only feedback the client would get from the cane is where the tip touches the ground and in this position (diagonal) the tip does not move. A more extensive cane technique is needed for the client with an inferior depression.

Superior field depression interfere with mobility in terms of overhang such as "P" shaped telephone poles, canopies and awnings. These clients may not even need a cane but may benefit from lessons that deal with protective skills and both vertical and horizontal scanning.

What is always a consideration with the client who has the hemianopsia is the cause of the defect. Those clients whose field depressions are caused by a stroke are not good candidates for Orientation & Mobility due to the damage that has been done to the brain.

One topic that I would like to touch on briefly that is not related to peripheral field defects is the subject of eccentric viewing. We teach those students, usually those with macular involvement, to use their remaining peripheral vision by literally looking at things almost "off center". Some clients feel strange about looking at someone or something when they do not appear to be looking directly at them. This is an uncomfortable feeling that must be overcome because although the client does not see things clearly any longer, there is a portion of the remaining vision which the object looks clearest. These clients should be encouraged to use effectively whatever vision they have. This



statement is true of any low vision client. If you have the vision and it is not detrimental to traveling, it should be used.

In summary, Orientation and Mobility for the person with low vision is taught on a one-to-one basis. It is a technique that is tailored to the individual needs of each client and their specific visual disorder. It is a system of units in which one is built upon the success of the previous lesson. Confidence is gained and independence and safety are promoted.

Janet B. Lurie, M.A.
Senior Instructor
Orientation & Mobility Department

10/25/78
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WHAT THE SOCIAL WORKER CAN OFFER

There is available to the doctor with a low vision practice, and to his patient, a network of rehabilitation services. It is the social worker's role as part of that network and as a support service to the doctor that I will be addressing myself here today.

A typical low vision patient with field loss may be a man in his fifties who is losing vision and whose job is in jeopardy because of it. He may have children in college or ready to enter college, a mortgage on his house, a wife immobilized by the bleak prospect of all that would be lost by loss of income and the implications of this for the future.

The Low Vision Specialist prescribes aids which may enhance this patient's vision in a limited way. For the patient, however, the threat of job loss may still be there, bills must still be paid, children's education provided for, equilibrium in family and marital relationships must be maintained - somehow.

When a way of life is threatened, the impact on the individual and his family can be profound and result in attitudes of helplessness and despair. He may totally reject the aid ("if an aid can't solve my problem, then I don't want it"). He may become angry and irritable with the doctor whose realistic professional limitations prevent him from restoring what was lost but in whom the patient has placed his complete faith as a miracle worker. Or he may react with uncharacteristic indifference or alarming resignation. Whatever the overt manifestations of this patient's disappointment and subsequent anxiety about the future, there is inherent in them a pull on the doctor as "the expert" to do something, which, with the Low Vision Specialist generally takes the form of - "Give me an aid that will restore my vision". The sense of helplessness engendered in the practitioner when faced with the demand of the patient for infinite wisdom can be as profound as that of the patient, for people in the helping professions are there out of a desire to relieve pain, to restore functioning, to heal, and their demands on themselves can sometimes be as unrealistic as the demands of those asking for solutions.

This concept has particular relevance for the issues addressed in this Symposium and, in particular, for the doctor with the patient for whom low vision aids do not in themselves meet the

pressing needs of his patient. For such a patient, there is a wide array of professional specialties available which, in conjunction with Low Vision Services, can provide the bridge between what the Low Vision Specialist can realistically offer and what his patient needs. Each of these services, provided in isolation can, as in Low Vision, often give only a partial solution and it is the recognition of this that leads to the development of the rehabilitation team as the provider of a total service to the low vision patient.

The social worker, as part of that team, carries out more than one function, the most critical of which is the intake assessment. An intake assessment begins with the worker's call-back to the referral source and/or client and ends with a mutual decision regarding future contact with the agency. Activity may vary from a telephone consultation to one or several interviews with the client and his family.

It is not necessary for the doctor (or for that matter, any referral source) to have all or any answers to a problem in order to discuss a referral for rehabilitation services with his patient. He may want to discuss the possibility of referral with the intake worker before he approaches his patient with such a suggestion, in order to have some assurance that he is moving in the right direction and is not sending his patient on a futile errand. We find, in general, that it is best in discussing referral to offer the opportunity for an exploration of rehabilitation resources as they relate to patient need and, if the patient is willing, to leave the patient and intake worker together to come to a realistic plan for meeting his goals.

Credence is given a client's view of his needs and how they may best be met. At the same time, if we act precipitously by filling the prescription the client has written for himself without an opportunity for an assessment of his total situation, we may be providing a very limited, fragmentary service and, more importantly, depriving the client of an awareness of all the options available to him. Given options which are soundly related to an understanding of his personality, his life style, an examination of strengths and resources he can call upon from within himself, his family and/or social networks, he is in a position to make a choice. Whether he elects to accept our recommendations or reject or postpone them, is a matter of personal decision for him and his choice is respected.

A thorough assessment can mobilize an otherwise immobilized individual and family to find their own solutions or to accept a referral for rehabilitation training. A "rejection" of services need not be seen as final - what an individual is not ready for at one time in his life he may be ready for at some time in the future when time itself or the circumstances of his life may provide the impetus for a different kind of choice. As important as the acceptance of the client's choice, is the assurance that rejection of service does not close doors and that he has the right to return at any time.

During the course of the assessment, the worker, with the client's consent may be consulting with other involved professionals (medical, other agencies, etc.) in order to better understand the implications of their reports and to integrate their findings into our understanding of the client. In instances in which the client has not had a low vision examination, one would be arranged for, since the prescription of an aid may be all that is necessary or, if not, may make a significant difference in future rehabilitation planning.

Casework Counselling may be offered or requested around individual, family or marital problems which may be acute and reactive to, or chronic and intensified by, the visual loss. Family dysfunction is painful, and disorganizing and can have a negative effect on the client's ability to utilize services at any stage of his contact. Conversely, an individual's success in the rehabilitation process may be all that is needed to restore family balance.

The social worker working as part of a rehabilitation team is, as are other members of the team, constantly aware of the limits defined by his particular area of expertise. It is those limits which make it imperative for openness and reciprocity in communication so that any plan arrived at with the client is a total plan related to an understanding of the total client.

Jeanne Katz, M.S.W.
Director
Social Services

October 25, 1978
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REHABILITATION FOCUSING ON JOB RETENTION

The patient, age 42, was seen in the Low Vision Service because he is finding it increasingly difficult to function as the manager of a large factory. He has Retinitis Pigmentosa, with a 20° visual field. His best visual acuity is 20/100 OD and 20/400 OS.

The Low Vision Service recommends:

- a +8 spectacle with 10 base-in prism OU
- a +7 COIL hand magnifier
- a +9 Jupiter Standlupe and
- a 2.8X Hand-held Selsi telescope (on loan) for this patient.

As he begins to reveal some of his other difficulties and frustrations, the Low Vision Clinician senses a need for counseling and services by other professionals. The client is referred to a rehabilitation counselor for further evaluation.

After an in-depth assessment of the client's functional responsibilities and a systematic analysis of his daily work routine, a plan is developed.

A consultation is arranged for the client with a rehabilitation teaching specialist, a visually impaired administrator and a partially sighted manager of a sheltered workshop. Some of the recommendations by rehabilitation consultants included the use of a hand writing guide, a black felt pen to provide greater contrast and the use of technical sensory aids and equipment. A ready access telephone directory and a filing system with a large print index were also recommended for his use.

This early intervention of rehabilitation resources made it possible for this client to continue to function effectively in his work environment.

The foresight, concern and the knowledge of available resources enabled the Low Vision Clinician to positively affect job retention.

Job retention continues to be a major concern to the field of rehabilitation. However, the client is seldom referred for rehabilitation services until after the client has been terminated from his employment or he is in an "in extremis" situation.

Early intervention is particularly important for a client who is having difficulty functioning on his job.

Employers are generally receptive to intervention by a rehabilitation specialist who will assist an employee to adapt or modify a work situation.

It is easier to help a person retain a job by working within his existing job environment than to retrain a client and begin to seek employment with a new organization.

The low vision practitioner may be the first person contacted by an individual who is faced with the initial stages of visual loss. Often, this loss begins to impact upon his social life, family and his job. Fearful of the consequences, he may not reveal his feelings to his family, friends, colleagues on the job or his employment supervisor. It is important, therefore, for the Low Vision staff to learn whether the client is receiving any of the supportive services which may assist him in keeping his life intact.

The Low Vision Clinician should be sensitive to the needs of the employed patient who has a visual loss and becomes fearful of losing his job. Under these circumstances, the patient may be trying to mask his problem avoiding the reality of a situation. If the eye condition is progressive as in Glaucoma and Retinitis Pigmentosa, he may be dreading additional losses certain that at some point he may be unable to work.

Faced with this series of circumstances, the patient is filled with anxiety, and frustration and clear thinking is often difficult.

It is particularly important for these patients to have ready access to a rehabilitation specialist who can

The on-site teacher/evaluator will be available to the client and the work supervisor until such time as they are all comfortable in the work environment. He provides guidance and support to the work supervisor. He may also be the source through which other supportive services may be provided.

An assessment of the work environment by a Low Vision specialist may be recommended or required. Reader Services may be needed as the demands of the job increase or the eye condition becomes progressively worse.

The burden of responsibility and support is shared by the client, the work supervisor and the teacher/evaluator. During this period of adjustment, the work supervisor and the other employees should begin to feel more at ease with the situation. Tensions and anxieties may begin to subside and, hopefully, problems which were deemed to be monumental are resolved judiciously by the application of good common sense.

Follow-up services through a periodic monitoring of a client in a job retention situation is an important aspect of a rehabilitation effort. Depending upon the needs of the client and the type of services required, various staff are deployed either to the work site or the client is seen at the rehabilitation center.

Low Vision practitioners must be aware of the dynamics of the rehabilitation process and how each of the interrelated services function. The process may be viewed as a wheel. The hub or focal point is the client. The extent of his involvement and commitment will greatly determine the successful achievement of the rehabilitation goal.

The spokes are representative of the myriad of services and resources available to the client--Low Vision, Social Services, Medical, Vocational Training, Personal Adjustment Training, Education, Recreation--are just some of the disciplines to which a client may be exposed. All of these services are fused together in a closely knit coordinated component to form the perimeter or the outer rim.

In a multi-service agency the process may be more readily recognized. Perhaps, the analogy to a wheel is less discernible to Low Vision practitioners in small or rural communities. However, a knowledge of rehabilitation services and how these services can profoundly affect the Low Vision patient is particularly important to all Low Vision practitioners. It becomes increasingly significant with the client population we are addressing in this workshop. With the adult patient who has Glaucoma or Retinitis Pigmentosa, the prognosis for the retention of usable residual vision may be tenuous at best. Early intervention and the appropriate referral by the Low Vision Clinician may offer the client his first and only opportunity to receive the supportive services which will make it possible for him to remain in a productive work situation.

Equally important is the need for the rehabilitation specialist to have access to the Low Vision service so that a client's vision potential may be maximized in accordance with his social, educational or vocational needs.

Affirmative action has created an environment in which people are becoming more attuned to their obligations to the handicapped. We as the practitioners must, therefore, insure that our clients are given every opportunity to function and compete with their sighted peers. Our commitment and the resources which we have at our disposal can and must be utilized to the fullest extent towards this end.

Vito A. Giordano, M.S., Director
Rehabilitation/Educational Services
10/26/78

TH11:sw

WORKSHOP 2

12th floor

THE YOUNG ADULT PATIENT WITH DIABETES: Emphasis on pathology, treatment, prognosis and aids

Low Vision Clinician and
Gayle Farrelly, R.N., B.S.N.
Low Vision Nurse Assistant

MEDICAL: Demonstration of special insulin devices

Katherine N. Hynes, R.N., M.A.
Supervisor, Medical Services

SOCIAL SERVICES: Impact on patients living with restrictions

Susan J. Clewner-Palca, M.S.W.
Social Services

REHABILITATION: The community resources and responsibilities for higher education and job training

Gerald Miller, M.A.
Senior Supervisor, Field Services
New York State Commission for the Blind
and Visually Handicapped

MOBILITY: Adaptation and alternatives in travel training

Richard Simms, M.A.
Supervisor, Rehabilitation Instructional Services
Mobility, Communications and Personal Management

WORKSHOP 2 - SENSORY TRAINING ROOM, 12TH FLOOR

THE YOUNG ADULT PATIENT WITH DIABETES

LOW VISION

EMPHASIS ON PATHOLOGY, TREATMENT
PROGNOSIS AND AIDS

Munro J. Levitzky, M.D.
Low Vision Clinician

Gayle Farrelly, R.N., B.S.N.
Low Vision Nurse Assistant

MEDICAL SERVICES

DEMONSTRATION OF SPECIAL INSULIN
DEVICES

Katherine N. Hynes, R.N., M.A.
Supervisor
Medical Services

SOCIAL SERVICES

IMPACT ON PATIENTS LIVING WITH
RESTRICTIONS

Susan J. Clewner-Palca, M.S.W., A.C.S.W.
Social Services

REHABILITATION

THE COMMUNITY RESOURCES AND RESPONSIBILITIES
FOR HIGHER EDUCATION AND JOB TRAINING

Gerald Miller, M.S.
Senior Supervisor, Field Services
NYS Commission for the Blind
and Visually Handicapped

MOBILITY

ADAPTATION AND ALTERNATIVES IN
INSTRUCTION

Richard Simms, M.A.
Rehabilitation Instructional Services

THE NEW YORK LIGHTHOUSE LOW VISION SERVICE

1953 - 1978

The presentation of the clinical material is covered
in the Thursday papers.



The Young Adult Patient With Diabetes:

IMPACT ON PATIENTS LIVING WITH RESTRICTIONS:

As a social worker at the New York Association for the Blind, I have seen an increasing number of young adult diabetic individuals with visual problems. It would seem essential, therefore, to begin to view the complexities we are confronted with in helping these people.

Generally, the young adult diabetic reluctantly approaches the New York Association for the Blind upon the onset of severe visual problems. Some individuals contact the New York Association for the Blind with the request for information or for "services." Frequently, exploration of their request reveals that the individuals are experiencing some difficulty in functioning. While the young adult person with diabetes has many feelings, thoughts, and questions which result from visual loss, the New York Association for the Blind personnel have their own reactions. One of the questions that might be asked is where does a rehabilitation agency fit in with helping those people who are suffering from a pre-existing degenerative medical problem resulting in a long-term disability, blindness. As a social worker, who usually is the first person to have contact with the individual, apart from our applications' worker, I feel rehabilitation does fit in to the helping process. This is especially true as the young adult diabetic (and his family) are in a crisis situation after some degree of visual loss is experienced.

Prior to experiencing a decrease in vision, the young adult with diabetes had to cope with his medical situation. The person had to confine himself to a special diet and/or medical regimen. This might have presented itself as an inconvenience, especially in social situations. Despite the individual feeling somewhat different or "cheated," he had no restrictions or difficulties in functioning. With the onset of severe eye problems the young adult diabetic becomes visible. He is no longer able to keep the degenerative part of the medical problem from himself, his family, friends, and especially, the "outside world." The person feels vulnerable and his fears of stigmatization become more real to him.

The young adult diabetic with visual problems can present himself exhibiting different modes of behavior. Whether the person appears as spontaneous or withdrawn, he is overwhelmed by his medical and visual conditions and the implications thereof. He might express feeling like a helpless person in a

hopeless situation. He might express his disbelief and/or shock and denial that diabetes has rendered him visually limited. The young adult with diabetes will often express his anger towards his medical doctor and/or ophthalmologist for treatment administered to him which he feels resulted in little or no improvement in his condition. This anger can be expressed as a result of the young diabetic's feeling that the doctor is not being totally honest about his prognosis and, thus, offering false hope to him and/or his feeling that the doctor is not available to him. Consequently the young adult diabetic may go "doctor-hunting." He may also fail to keep regular medical appointments. In actuality, I believe that the expression of this anger emanates from his coming to terms in recognizing the difficulty there is in controlling this disease. Additionally, the young adult diabetic's expression of anger is anger towards himself and his condition and towards the doctor for not being omniscient.

In addition to the expressed responses to medical treatment, the individual expresses anger and subsequent guilt towards his family for passing on the disease to him. The person might also reproach himself for some earlier inadherence to his medical regimen which he believes has now resulted in his present status (blindness).

As the individual's vision fluctuates or further deteriorates, he is no longer able to deny impending blindness and both he and his family begin to mourn the visual loss. The young adult diabetic feels out of control. Although he maintained his diet and medical regimen, he is unable to stop the degenerative process of diabetes.

The person who experiences a progressive visual loss realistically becomes more limited in his ability to function autonomously. The conflict of dependence vs independence is especially felt by the young adult diabetic with visual problems who might very well be experiencing other medical complications simultaneously. In viewing where the person is at along the developmental continuum, young adulthood is the time when the person refines his identity. Generally, he has separated from his family, and looks towards his ability to fulfill future responsibilities, tasks, roles, and/or aspirations independent of others. As his vision deteriorates, he is thwarted in his attempts toward independence by virtue of his medical and visual condition superimposing itself upon the developmental process. The many physical changes and consequent psychological changes the individual is undergoing may intensify the question ... "who am I?, etc."...



WORKSHOP 2 - SENSORY TRAINING ROOM, 12TH FLOOR

THE YOUNG ADULT PATIENT WITH DIABETES

LOW VISION

EMPHASIS ON PATHOLOGY, TREATMENT
PROGNOSIS AND AIDS

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REHABILITATION

THE COMMUNITY RESOURCES AND RESPONSIBILITIES
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Gerald Miller, M.S.
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NYS Commission for the Blind
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MOBILITY

ADAPTATION AND ALTERNATIVES IN
INSTRUCTION

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As we begin to recognize the ramifications of the conflict of dependence vs independence in the functional arena, we must also begin to be cognizant of what the young adult with diabetes is experiencing as a result of being financially dependent. For many young adult diabetics who are legally blind, there is no choice but to apply for government assistance. Upon receipt of his benefits, the individual may then encounter other problems, such as: his inability to afford the proper foods to maintain his diet despite receiving food stamps; his inability to pay for costly medications that may not be covered by Medicaid/ Medicare, especially if the person is not connected with a hospital or clinic; his difficulty with pharmacies not honoring Medicaid as they know of Medicaid's reputation for unduly long waits for reimbursements; and his inability to meet monthly living costs. This makes for stressful situations for these individuals who have little money and little energy left over for leisure pursuits. These problems make it difficult for the young adult diabetic to meet his medical needs. Advocacy by the appropriate persons is crucial during this time of crises.

As the young adult with diabetes attempts to cope with the disease, the complications and everything else experienced as a result of the degenerative process of diabetes, he invariably becomes depressed. The quality of his descriptions and expressions of hopelessness, helplessness, erratic sleeping and eating patterns, lethargy, and indecisiveness, etc. are so pervasive and overwhelming that we can understand why he becomes immobilized. Also, the young adult by nature wants to deal with his problems independently. He tends to isolate himself from his family and others, simultaneously rejecting the family's offerings of assistance. The inability to change the circumstances, and the perceived and experienced "failures" such as laser treatment, low vision aids, neuropathy getting in the way of rehabilitation instruction and even counseling tend to heighten the young adult diabetic's feelings of despair.

Professional intervention with this population can be arduous and frustrating. On the one hand, the young adult with diabetes sometimes is unable to, and/or is unwilling to talk about his disease, his visual loss, or the despair he is experiencing. Sometimes the person won't let anyone help him as he would "rather go it alone." The individual can hold on to his helplessness and despair indefinitely for fear of future disappointments. On the other hand, the

professionals involved in the helping process bring their own expectations and attitudes into the treatment process. In working with the young adult diabetic, we see that they can be demanding, and this sometimes results in our getting caught up in feeling that we should be able to fulfill demands which cannot be met. We must be aware of the role these factors play in the therapeutic relationship or we will not be as effective in working with this population as we would hope to be.

In my direct work as a social worker with these individuals, I attempt to create an atmosphere of warmth and acceptance. This atmosphere usually enables the young adult with diabetes to share his experiences more freely with the worker. By means of my attempts at empathising, understanding, and acknowledging the difficulties he encounters, the person continues to share highly charged material.

In order to help the individual move from feeling helpless, dependent, and overwhelmed, etc., I utilize a here and now approach. I also help the person prioritize his problems and set priorities. Discussion of the past as it relates to the present helps me to understand the person's strengths and how he dealt with life until now. This approach aids me in seeing what the person is capable of doing.

I will then encourage and support the individual to set limited goals he can accomplish in his home environment. As the person is able to fulfill the simpler tasks, I continue to assist him in setting goals involving the completion of a more difficult task. This method enhances the individual's self-image and sense of mastery.

In helping the young adult diabetic re-establish his chosen lifestyle, I refer to his presenting circumstances and the resulting complications. I suggest to him that he is in a period of transition and that it is temporary in nature. I indicate that while he is in a dependent state at the onset of the rehabilitation process, as the process continues he will acquire those skills allowing for more independent activities. Additionally, I point out how people are mutually dependent upon each other in a variety of ways to have needs met. At the same time, I support the person's avowed distaste for dependency which is often associated with his loss of control, but I also point out his real need for assistance now, and to some extent in the future. This



approach enables the person to begin to recognize the reasons for his frustrations and it helps him begin to rethink how we can approach the changes he encounters.

In reviewing the impact of living with restrictions on young adults with diabetes, we must not overlook the impact diabetes and its subsequent restrictions have on the individual's family. The family, as with the diabetic himself, has been living under stressful circumstances since the diagnosis was made. The fears of diabetic complications that they may have worried about have become a reality. The guilt the family has experienced for passing the disease on to their child is now heightened. The family may unrealistically reproach themselves for not having done enough for or for not always being available to the child when he wanted them. Sometimes the family experiences the conflict of feeling they have not done enough for their child and concurrently fear the child's disabilities and subsequent needs will be burdensome and interfere with their lifestyle.

Obviously, the diabetic and his family share many concerns about the disease. However, these shared concerns are often not communicated within the family. In addition, we are not likely to see families in casework around these concerns. One reason for this silence and inability to engage the family is the young adult diabetic's chronological age and the developmental tasks he is attempting to resolve. Another reason may be longstanding family attitudes towards seeking or not seeking outside help to work through their problems. In other instances, the families may have been unaware of or not in need of professional help available to them. For those people who have had difficulty coping, preventive measures may not have been available, and in cases where the young adult diabetic and his family were treated by a private physician rather than a hospital, ancillary services may not have been available. These factors seem to indicate the need for a team approach in working with this population so that the young adult with diabetes and his family may have many of their needs met.

I believe the phenomenon of non-communication within the family is similar to the phenomenon of non-communication among the helping professions. The young adult with diabetes and his family express feeling overwhelmed, frustrated and vulnerable by the degenerative process of diabetes. The helping person also experiences similar reactions working with this population. The individual and his family can

indeed be aided in working through some of their feelings if supportive intervention is offered to them and if they are willing to accept this intervention even as early as when the diagnosis is made. If this is true, it would appear that the helping person also has the need for a forum to be built into his agency where he can be offered expression of, understanding of, and support of his feelings by others, and thus become aware that these feelings are not unique, but shared by all members of the team.

Better communication among staff could only enhance our ability to help the client by reducing conflict and confusion. Communication stimulates greater cooperation within the staff and helps to develop an agency philosophy geared to serving the needs of the diabetic client. Even more important than the staff of one agency realizing a need for communication with each other, it is imperative that all disciplines working with the diabetic client communicate with each other and the client.

The visually impaired diabetic requires ongoing medical care. Therefore, there cannot be a shift in responsibility from one discipline to another; there must be a sharing of this responsibility.

I am sure I have only touched upon some of the many issues and questions we encounter in working with this population. However, I think it is clear to say that we need to become more cognizant of and more sensitive to what it is like for the young adult with diabetes and his family to deal with this degenerative disease. Above all, it should be emphasized that in intervening on behalf of the young adult with diabetes it is essential that we view the person as a many faceted total being and thus, treat him from this perspective.

Susan J. Clewner-Palca, MSW
Social Services

mh:M7
10/23/78

THE COMMUNITY RESOURCES AND RESPONSIBILITIES
FOR HIGHER EDUCATION AND JOB TRAINING

This presentation focuses on rehabilitation services, from a State Agency that can be provided to the young adult patient with diabetes. The emphasis will be placed on the importance of communication between patient, parents, clinicians and rehabilitative staff. The importance of the relationships established with the medical profession and its relevance to rehabilitation success will be underscored.

The following questions will be addressed:

1. Does the rehabilitation profession understand and encourage the role of the clinician in the rehabilitation process?
2. Do clinicians accept and understand their responsibilities?
3. What are some of the anxieties and concerns that result in doctors' failures to make referrals?
4. Are rehabilitation professionals failing to seek out appropriate medical information?
5. Are our rehabilitation goals for the juvenile diabetic too limiting or too unrealistic?
6. What is our responsibility to the patient's family?

Gerald Miller, M.S.
Senior Supervisor, Field Service
New York State Commission for the Blind
and Visually Handicapped.

ADAPTATIONS AND ALTERNATIVES IN INSTRUCTION

The New York Association for the Blind Rehabilitation/Educational Department offers a core or generic program of instructional services which in some cases must be adapted for our consumers who are diabetic. Our goal, however, remains the same and that is the restoration of skills in the areas of communications, orientation and mobility and personal management which, when completed, affords him/her the right, once again, to pursue personal, educational and vocational endeavors. Instructional services is one facet of what is commonly called personal adjustment training.

This presentation is an effort to communicate what is generally taught to our clients and in cases where the nature of diabetes poses limitations on the individual, alternative instruction, where it is feasible, will be discussed.

It appears wise to approach instruction with the attitude of getting the core program across, and when dictated by medical information and/or client information institute whatever adaptations are available. A thorough evaluation period allows instructors to assess our consumers' needs and prepare alternatives to the generic program if necessary before instruction begins. Our experience has been that in order to provide an effective and efficient service, we must tailor this suit of instruction to the individual and allow for an aura of creativity and flexibility. Our instruction, again, is in 3 major areas, communications, orientation and mobility and personal management. It seems that the greatest impediment we confront in these areas as a result of diabetes is the degree of neuropathy involvement. When the involvement is severe, we must obtain other ways to get the message across. In some cases such as Braille, other systems with any variation of symbols must be used. It appears safe to say that if it works, is safe, is beneficial, and is not too stress producing--use it. In other situations such as orientation and mobility, there are some specific alternatives which have been known to work. All told, however, set rules are few and far between. Our instructors must be aware that this particular individual is coping with more than his or her blindness and that we are here to provide instruction which will aid in maximum independence for the individual with blindness and complications of diabetes.

Communication skills consist of Braille, Communication Tools, Foundations of Spelling, Handwriting, Language Arts and Personal Typing. Although we consider each of the areas important, as evidenced by their presence in our curriculum, our interests

for this discussion will be on Braille and Typing. Our objective for instructing Braille for those who need it is to provide one method of recording, acquiring and communicating information for personal, educational and/or vocational objectives. The Braille course provides instruction in both the reading and writing of Grade I Braille including the alphabet, numbers, and some punctuation marks. In order to read books and periodicals, Grade II Braille including contractions, short form words, alphabet word sounds, punctuation and composition signs is offered. Both the slate and stylus and Braille writer are taught. The primary tool of instruction is the 6-dot cell and the primary sense used for learning the variations of the Braille cell--which make up the alphabet and in turn words--is tactual perception. When tactual perception is poor and Braille is not feasible, other methods must be employed for recording information. One method which can be employed is tape recordings. A person may want to record important telephone numbers or any other thing that he/she deems important. Another substitute is the use of various markings with different signs or symbols to identify particular objects (using buttons, tapes, thread, etc. to label clothing, shoes, etc.). Jumbo Braille has been used as an alternative to the conventional size Braille when it can be tactually perceived but the short-coming is that publications are not released with it. Also one may be able to use the large dot Braille slate if regular Braille cannot be read.

Personal Typing teaches the use of the typewriter as a tool for personal expression and provides the visually handicapped individual with a means of written communication with the sighted world. A Personal Typing course provides instruction in the mechanics of typing, use of various transcribing machines and skills necessary for the preparation of various communications. Usually once the home row keys are learned, there is little difficulty with this area. Yet, we have learned that we can alter the pace of training for our population with diabetes thus avoiding stressful situations.

Personal Management involves Home Economics, Personal Grooming and Techniques of Daily Living. Home Economics centers around functioning in the kitchen to contribute to the total life adjustment of the individual. It facilitates self-care as well as home management. This course provides instruction in the skills necessary for safe, efficient management in the kitchen, techniques for food purchasing, storage, preparation and serving as well as general kitchen care are included. Goals for the course are the ability to: identify, describe and demonstrate safety techniques in all kitchen activities;

prepare and serve food items encompassing such skills as pouring, spreading, measuring and setting a table as well as preparations involving various kitchen utensils and appliances; demonstrate management skills including kitchen organization, storage, labeling, meal planning, budgeting, marketing, record keeping and cleaning. Some areas where diabetic complications may warrant special attention are diet, pouring liquids, spills, testing for heat and slicing. This area places an emphasis on maintaining a proper diet and although the diet may not be kept, we feel that an awareness of what is right is still important and we have an obligation to provide our consumers with that awareness. Special attention is given to meal preparation with emphasis on not only the proper food, but also exchanges which can be made to add variety to a meal. Cookbooks for diabetic diets are available both in braille and large print to allow for some choices.

Individuals are shown a wide range of devices which have been adapted for the blind and in most cases the devices either are adequate or can be adapted further to suit the needs of the blind individual with diabetes. Due to neuropathy involvement, pouring liquids, testing for heat and spills, make the kitchen an area where very thorough safety techniques must be employed.

Techniques of Daily Living provides instruction in varied skills necessary to satisfactory personal care and competent home management. Exposure to and discussion regarding available aids and appliances are provided. The goals of this area are to: demonstrate awareness of the skills necessary to maintain personal hygiene; shopping care for clothing items; demonstrate home management skills including cleaning, laundering, ironing and sewing; demonstrate personal management skills in the areas of wallet and pocketbook organization: use of Braille watch, telephone dialing and currency utilization.

The presence of neuropathy involvement may prevent one from doing things such as reading a watch tactually, following seams and stitches when sewing and identifying coins accurately. If vision allows, we can substitute a large print watch. If not, we can use a pocket watch on which the dots are further apart and easier to feel. For sewing, we may have to modify the thread or use a coarser type. Also, the employment of a needle with a larger eye for threading purposes may be involved.

It is obvious at this juncture that adaptations and alternatives are for the most part a matter of creative thinking on the part of the instructor and an awareness of what can work effectively and efficiently for the client.

The final area of discussion is orientation and mobility. We believe that the ability to move safely, confidently and efficiently within the environment is a vital ingredient in the successful adjustment and functioning of the visually handicapped individual. Orientation and mobility provides instruction in pre-cane and cane techniques necessary for safe, efficient, effective and dignified travel and that skills are taught in almost every environmental situation imaginable. It is necessary to recognize that this area of instruction can be stressful and taxing both physically and emotionally. Orientation and mobility can be provided in 3 basic ways:

1. sighted or human guide,
2. dog guide,
3. the cane - long/prescription or collapsible.

A fourth way is via electronic travel aids with a prerequisite of having training with a cane or a dog. Again, the objective is to afford maximum independence as a traveler. The length of daily instruction is usually one hour, but it varies in duration and is dictated by 3 factors:

1. health and stamina of the individual,
2. phase of instruction,
3. the particular objective to be achieved.

The entire program of instruction may involve any number of hours contingent upon such factors as the amount of residual vision, age, travel needs, motivation, health (endurance), rate of success, vocational/educational objectives, family influence and other factors.

When it is necessary to alter the mobility program, some standard guidelines can be used:

1. We make every effort to recognize that physical activity works like insulin by lowering blood sugar and using it for energy. For this reason, orientation and mobility is scheduled

at a set time each day when low blood sugar is not likely a problem. For example, it can be scheduled after breakfast or right after lunch.

2. Shorter lesson times may be necessary if stamina is a problem.

3. More limited goals and instruction broken down into smaller units.

4. After basic cane skills, a referral to dog guide school is not at all unusual for more protection from injury.

5. Avoidance of extreme cold or heat.

6. Use of support cane where there is not good balance.

7. Lengthening of the cane for advanced warning.

8. Modification of regular techniques to involve little or no arc height and a lighter touch.

9. Much more extensive evaluations in an effort to determine neuropathy involvement.

10. A constant review of the literature regarding diabetes and its complications.

CONCLUSIONS:

We have attempted to indicate that there are areas where we can assist tremendously by providing training and instruction geared to individual needs which makes it possible to continue functioning. Yet, when the nature of the disease imposes limitations on the individual, it, too, places limitations on our effectiveness. It is reasonable to imagine an individual coming to this facility, receiving our generic curriculum and benefiting from it immensely due to their good functional level as dictated by the lack of severe complications of diabetes. However, that same person may very well return to our agency at a time when the disease imposes stricter limitations or more severe complications. It then is necessary to display the adaptations that we discussed as well as those that we can positively create as well as flexibility and creativity in scheduling and program planning. It is, indeed, imperative that we consult with the primary care physician and the diabetes specialist to insure that we are

working in the most positive and productive way with them by providing instruction and creating situations for the individual which are not counterproductive and/or contraindicated by the doctors' expertise. In some instances such as orientation and mobility, it is recommended that the individual instructor contact the doctor to clearly delineate what the program is for the individual and receive feed-back regarding parameters to establish when it is necessary. In other cases, designated staff person can be the contact person to interpret and relay this vital information to our staff. Our agency has medical personnel (R.N.'s) who do just that.

No discussion of services we provide would be satisfactory unless the issue of timing (when to refer) is mentioned. We are informed that the amount of visual impairment is dictated by the form of diabetic retinopathy, but we strongly suggest that where there is visual involvement which restricts an individual or prohibits him or her from attending to daily activities and needs, that we can help. Even the individual who experiences a generally slow progression can be helped through compensatory techniques which enhance the degree of maintenance. Therefore, there should be little hesitation to make "early" referrals. Finally, we as professionals, have a responsibility to be aware of the effect diabetes has upon the population we serve. Yet, there is a greater responsibility to be ever alert to the ways in which we can ameliorate the situation. One way this can be done is by providing successful positive experiences which can be given to the individual working in tandem with the primary care physician, diabetes specialist, ophthalmologist, social worker, rehabilitation counselor, the family, low vision specialist, instructors, et al.

Richard Simms, M.A.
Supervisor
Rehabilitation Instructional Services

October 25, 1978

W8:sw

WORKSHOP 3

Auditorium, Main Floor

THE OLDER PATIENT WITH MACULAR

DEGENERATION: *Emphasis on the limits of case management in an office practice*

Low Vision Clinician and

Ruth Stambaugh, R.N., B.S.

Supervisor Low Vision Clinical Service

AUDIOLOGY: *Impact of decreased hearing on visual impairment*

Adrienne Karp, M.A.

Audiologist

SOCIAL SERVICES: *Relating the social, family and community factors*

Norma Simons, M.S.W.

Social Services

RECREATION: *Leisure activities and low vision aids*

Kenneth E. Phillips, M.A.

Director, Recreation Cultural Services

MOBILITY: *How to assist your patient with mobility*

Frances Kotkov, M.S.

Mobility Specialist

REHABILITATION: *Adaptations for daily living tasks*

Phyllis Levy, B.A.

Supervisor, Community Rehabilitation Teaching

WORKSHOP 3 - AUDITORIUM, MAIN FLOOR

THE OLDER PATIENT WITH MACULAR DEGENERATION

LOW VISION

MANAGEMENT IN AN OFFICE PRACTICE

Eleanor E. Faye, M.D., F.A.C.S.
Ophthalmological Director
Low Vision Service

Ruth Stambaugh, R.N., B.S.
Supervisor
Low Vision Clinical Service

AUDIOLOGY SERVICE

IMPACT OF DECREASED HEARING ON
VISUAL IMPAIRMENT

Adrienne Karp, M.A.
Audiologist

SOCIAL SERVICES

RELATING THE SOCIAL, FAMILY AND
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Norma Simons, M.S.W., A.C.S.W.
Social Services

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Kenneth E. Phillips, M.A.
Director
Recreation & Cultural Services

MOBILITY

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Frances Kotkov, M.S.
Mobility Specialist

REHABILITATION

ADAPTATION FOR DAILY LIVING TASKS

Phyllis Levy, B.A.
Supervisor
Community Rehabilitation Teaching

AUDIOLOGY: impact of decreased hearing on the older patient

The older patient with macular degeneration is often the same one who has a hearing problem. Although it is likely to be a slowly progressing hearing loss, it becomes suddenly apparent when vision begins to decrease. Statistics show that of the 14.5 million Americans who have handicapping hearing loss, more than half are over the age of 65.(1) The most common cause of hearing impairment in the older adult is "Presbycusis." Literally translated, this means a diminution of hearing capabilities due to advanced age. It is most often characterized by a loss in the ability to understand rather than hear sound. This is referred to as a loss of discrimination ability more than one of acuity, although the latter usually does exist to some degree. According to one expert in the field of Geriatric Audiology, "... presbycusis does not appear to be a single pathological condition in its own right but simply the inevitable result of the operation of one or more processes which are capable of upsetting the organ of hearing and are particularly liable to occur in old age."(2) It can occur suddenly or gradually. Its existence is known to be greatly affected by such factors as exposure to noise, tobacco and alcohol and the presence of circulatory disorders as well as a familial predisposition to hearing loss. It can begin to occur in people at 35 years of age and in others at 80. You will see, of course, patients whose hearing losses are due to other causes. The greatest preponderance, however, will be the presbycusic, the patient who began life with normal hearing and is losing it with advancing age and no history of ear pathology.

Presbycusis is not a simple disorder of hearing. No less than 4 types have been documented.(3) The diagnosis is best made on examination by an otologist and evaluation of hearing function by an audiologist. The type of presbycusis present depends upon the portion of the hearing mechanism where a degenerative process is taking place. There are enormous differences in the amount and type of concomitant auditory dysfunction because of all the different factors to which each patient's ears have been exposed.(4) Along with hearing problems, one half of all presbycusic patients have deficiencies in other sensory areas such as sight, taste and smell.(5) Vision and hearing, however, are the

two avenues on which a person relies most heavily in order to maintain his normal functioning in a social environment. If one of these senses becomes less useable, the person becomes much more dependent upon the other. It stands to reason, then, that assessments of both vision and hearing in this older population are of great importance since there is more of a possibility for impairments to be present in both senses and each one is used to compensate for the other.

The problems of the patient with macular degeneration are greatly magnified if there is a concomitant presbycusis present. Since presbycusis is not a reversible or medically correctable condition, the only avenue of auditory rehabilitation available is through the use of lip reading, hearing aid fitting and auditory training. Lip reading is, of course, totally dependent upon visual ability. As for the fitting of a hearing aid, one of the factors considered to be important for predicting successful hearing aid use is the visual ability of the patient.(6) There is a documentation that visual problems frequently reduce the patient's ability to derive optimum benefit from auditory rehabilitation.(7) The greatest problem facing the hearing handicapped patient with macular degeneration is that he can no longer use his vision to compensate for the loss of hearing and vice versa. He will report, in fact, that his hearing is worse since his vision began to deteriorate. What has often happened is that he can no longer use lip reading cues which helped him overcome the hearing impairment which has probably been present for a considerable period of time. He also loses the detection of facial expression. He especially loses the sense of being part of a group because of the isolation which one feels when one cannot follow verbal interchange. Because the visual problem hinders the ability to read a newspaper or watch television, the patient becomes more dependent on conversation or a radio for information. The hearing impairment naturally interferes with both of these activities. In the face of all this adversity, it is still common to find that the older adult will deny any hearing problem, laying blame on the fact that other people no longer speak clearly. Hearing loss is a condition associated with older age. Few of us accept that issue gracefully. Since hearing loss can't be seen, it is easier to deny.

To make matters even a little more difficult, there is no guarantee for successful auditory rehabilitation in cases of presbycusis. This is not to say that no older adult can be helped with a hearing aid. Such a common misconception is rapidly being dispelled. Many more hearing aid users are gaining benefit from amplification than ever thought possible only a few years ago. The capabilities of those small instruments in the amplification and reproduction of intelligible sound is truly a scientific accomplishment. They often bring the hearing impaired patient back into the social world of communication. They also give those people with more severe losses the ability to be alerted to warning sounds such as bells and sirens. If nothing else, they help alert a user to the fact that someone is trying to talk to him. In this way, hearing aids help to keep the older patient from withdrawing into a world of silence, loneliness and deep depression. A hearing aid, however, is very much like a low vision aid in that it magnifies the area of hearing which is still present. It cannot amplify that portion of the hearing which is gone. Therefore, it is hardly a cure for the hearing impairment. One must have a realistic expectation of the function of the hearing aid in order to benefit from it as much as possible. A common complaint of the presbycusic patient is that the hearing aid makes sound louder but not clearer. This differentiation is quite important and would be analagous to the visually impaired patient who could see but not recognize what he is viewing. The hearing handicapped patient with a discrimination problem can hear your voice but often misinterprets certain words because of the nature of his hearing loss. This condition is the result of damage to the inner ear and/or eighth cranial nerve, a very common finding in the older adult. A program of auditory training is often helpful in such cases.

If the use of a hearing aid is indicated, it can be fitted either monaurally or binaurally. By placing a hearing aid in one ear, it is possible to help a patient understand conversation more easily. A major disadvantage for the visually impaired patient, however, is the likelihood that he will have trouble telling from which direction a sound is coming. Localization problems arise when one ear is considerably better than another. The use of a monaural hearing aid creates this condition. It is a significant problem in cases where the person is having visual difficulties

which interfere with his independent traveling since he needs to know in which direction traffic is flowing. A monaural aid will also make it somewhat more difficult to understand conversation or discussion in a noisy environment. The aid amplifies all sound, the background as well as the signal. Some hearing aids use directional microphones to help overcome this problem. If possible, binaural hearing aids should be considered for the visually handicapped person. Unfortunately, if an older adult is living on a small, fixed income, the cost of two hearing aids may be prohibitive. Medicare does not help pay for hearing aids at this time. An additional problem caused by use of a hearing aid may be a loss of the sense of distance of a sound. This is due to special circuitry called compression amplification. Such circuitry is very helpful to the hearing impaired person who has a problem tolerating loud noises but it is a disadvantage for the visually handicapped patient who needs to determine how close a source of sound is for orientation purposes.

It is the visual loss which interferes with the ability of the patient to manage a hearing aid, especially if there is also a diminution in tactile sensation so common in older adults. In hearing aid design, miniaturization is the goal. Small batteries, volume controls and switches are often quite difficult for older hands to manipulate and older eyes to see. All of these obstacles create problems but some are certainly soluble if the patient is fit with the correct hearing aid and receives the necessary training in its use. This latter recommendation is extremely important for the older adult. It is very unwise for him to purchase an aid from any agency which is not prepared to offer the appropriate training necessary for almost all people in the population under discussion. Such training is usually available at a University or Hospital based Speech and Hearing Center.

As stated previously, an older patient is often reluctant to admit hearing loss. The family member who accompanies him to the ophthalmologist or optometrist may add to the problem by accusing the patient of hearing only what he wants to hear, thereby implying that the patient is consciously uncooperative and difficult. The professional who is working on the patient's visual difficulties may be the first to confront him with the issue of a hearing loss as well. It must be explained to the patient that hearing loss is not under his control nor is it a sign of senility.



In fact, senility is a contributing factor to communication problems in only 29% of presbycusis patients.(8) He especially must be assured that he is not going to be blind and deaf. It must be made very clear to him that hearing and vision are not neurologically interrelated. The family member must be told that the patient's ability to hear some things but not others is characteristic of the type of hearing loss usually found in people as they grow older (at least in our society). It is truly possible for the older adult to understand some voices but not others, to understand some words but not others, and to be even more confused by discussions held in noisy areas where many people are participating. Age usually brings with it a lessening ability to process as many auditory stimuli at one time. How many of us who are over the age of 30 and have perfectly normal hearing have said to another person, "You know I can't hear you when the water is running?"

If the patient has an obviously handicapping hearing loss, he should be advised to see an otologist for a medical examination. It is then advisable for him to have his hearing evaluated by a certified audiologist who will help determine the amount and type of hearing impairment which exists. Some losses can be eliminated medically or surgically. Those that cannot, including presbycusis, require auditory rehabilitation, usually in the form of a hearing aid. It is helpful for the ophthalmologist and optometrist to know the names of several otologists and audiologists for referral purposes. In most instances, an audiologist is better qualified to help this patient adjust to the problems of the hearing aid than is a hearing aid dealer. Most dealers have no training or experience in the area of auditory rehabilitation except the knowledge of how to fit, sell and service the hearing aid. An audiologist is required to learn and use techniques of rehabilitation as a part of his professional training. He or she will also have information regarding additional aids for the hearing impaired patient which can make daily life much more comfortable. There are special amplifying devices for radios and television sets. There are methods of amplifying telephone receivers and/or changing the alerting signal on a telephone to meet the needs of different hearing impairments. Group classes supervised by qualified audiologists often help the older adult to see that he is not alone in his plight and that some difficulties can be overcome.

If there is a hearing problem present, the recommendation of low vision aids should include consideration of the patient's auditory needs as well. For example, when prescribing an optical aid for reading purposes, it is important to note that these aids, because of their short focal distance, hinder the user's ability to read the lips of another person who may be sitting in the room with him while he is reading. The low vision specialist might want to consider an intermediate distance aid or one which allows the patient to see another face at a reasonable distance. This recommendation is useful whether the face being watched belongs to a real person or is on a television screen. We find that most people, even those with visual and hearing impairments, continue to use the television for their main source of entertainment. For the older adult especially, it is convenient, economical and a source of much conversational material. The appropriate optical aid plus an individual TV amplifier can add greatly to the enjoyment of our multiply handicapped adult. If the patient or the professional evaluating his hearing asks advice about putting a hearing aid into the temple of an eye glass frame, our strong preference is that this be discouraged. The low vision patient will have different eye glasses and optical aids for different visual situations and the hearing aid cannot readily be switched from one set of glasses to another. Also, if the eye glasses require repair, the hearing aid is lost to the patient for that period of time. There are many types of hearing aids which can be worn comfortably along with eye glasses. These models are preferable.

Finally and probably most importantly, there is the issue of how best to communicate with the older hearing impaired patient who comes for help with his visual handicap. The following suggestions are useful for communication with a hearing handicapped person of any age and should also be applied to those who come already wearing a hearing aid:

1. Speak at close range and be sure he knows that you are addressing him. Sometimes, this requires touching his arm to get his attention.

2. Speak clearly and a little more slowly than usual. Older people especially may not process auditory information as quickly as they formerly did.
3. Shouting is generally of no help. His hearing problem often has to do with a loss of discrimination abilities more than a loss of acuity. Also, the issue of confidentiality arises when you are shouting information which everyone in the waiting room can hear.
4. Try to keep the ambient noise at a minimum.
5. Make sure the patient has understood your questions or directions by discreetly having him repeat back to you what you have explained to him. This is truly the only way in which you are sure that he has understood what you have been saying to him.
6. If an interested third party is present, include him in on any instructions. The patient is often better able to understand a familiar voice and you may need that person to do the explaining for you.
7. If necessary, talk directly into the patient's ear for optimal communication with the more severely hearing impaired.
8. Consider having a small amplifying unit available for those clients with more severe hearing loss. These units have good fidelity and are of great assistance in communicating with such patients.
9. If all else fails, write instructions to those patients who are capable of reading.

Above all, we must remember that the patient with macular degeneration and a concomitant hearing impairment is usually feeling even more depressed about his inability to function normally than if he merely had to cope with one handicap or another. It is our responsibility to make available to him as much meaningful sensory input and as much gentle understanding as possible. Who among us would accept such multiple problems gracefully?

Adrienne Karp, M.A.
Audiologist

10/19/78

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FOOTNOTES

¹Rupp, R., "The Significant Other Person: An Essential Factor for Success with the Elderly Hearing Aid User," Hearing Aid Journal, Vol. 30, No. 12, Sioux City, Iowa, Oct. 1977, p.9.

²McCandless, G., "Hearing Aids and Aging," Hearing Aid Journal, Vol. 30, No. 12, Sioux City, Iowa, Oct. 1977, p.44.

³Willeford, J., "The Geriatric Patient," Audiological Assessment, Prentice-Hall, Inc., Englewood Cliffs, N.J., 1971, p. 290.

⁴McCandless, G., "Hearing Aids and Aging," Hearing Aid Journal, Vol. 30, No. 12, Sioux City, Iowa, Oct. 1977, p. 6.

⁵ Ibid., p. 44.

⁶Rupp, R., "The Significant Other Person: An Essential Factor for Success with the Elderly Hearing Aid User," Hearing Aid Journal, Vol. 30, No. 12, Sioux City, Iowa, Oct. 1977, p. 39.

⁷Miller, M., "Audiological Rehabilitation of the Geriatric Patient," Maico Audiological Library Series, Vol. II, 1967, p. 3.

⁸McCandless, G., "Hearing Aids and Aging," Hearing Aid Journal, Vol. 30, No. 12, Oct. 1977, p. 44.

THE OLDER PATIENT WITH SENILE MACULAR DEGENERATION:
Relating Social, Family, and Community Factors

Enabled or Disabled? This is the difference between the person who makes a successful adjustment to the effects of macular degeneration and the person who becomes emotionally and physically crippled when his central or reading vision is impaired as a result of the same condition.

For the older patient with macular degeneration, the difference in the outcome of his adjustment depends, not only on his personality and reaction to the visual loss, but perhaps more importantly, on the help he receives at this time in his life. Low vision aids are an important, at times the only, means necessary for this patient to resume his former lifestyle and functioning. However, for many other patients, low vision aids may not be useful, limited in their effectiveness or may be rejected entirely. These are the patients who may leave the Low Vision Clinician's office feeling disappointed, angry, hopeless and helpless. Such feelings are not uncommon initially among all patients who lose some vision. However, for those who are unaware that help, aside from medical or surgical treatment or eyeglasses is available to them, dependency and hopelessness can become permanent. These people can accept a life of disability, possibly first spending much money and time--neither of which they have a great deal of--in search of miracle doctors or the "right" eyeglasses which they frequently believe the ophthalmologist or optometrist has not given them. Patients often relate this to me after they have been examined in the Low Vision Clinic. Statements commonly heard are: "the doctor didn't give me the right glasses. He didn't understand what I wanted..." or, "I must be going blind and the doctor didn't want to tell me..."

Patients like these need not anticipate such a dismal future if they have the opportunity to avail themselves of the full gamut of professional help outside of the doctor's office. For instance, as a social worker assigned to the Low Vision Clinic at the Lighthouse, I see many such patients after the Low Vision doctor or Low Vision nurse-assistant has referred the patient and/or his family to me.

These patients come in with numerous complaints and may appear to be anxious, depressed, outraged, and so on. Family members can also be caught up in the emotions and may need help in learning to cope with the crisis.

Many patients acknowledge difficulty in believing that they have lost some vision and realize that they have been in shock and are seeking a miracle. Talking about this with the social worker may in itself help the patient begin to accept reality. Many feel and eventually may verbalize that the loss seems worse than it is--their panic exaggerates the effects of the condition. Often they fear isolation and/or dependency. There may be no family or friends to turn to for help. The patient may not want to burden anyone else and may feel ashamed of his needs. He may stay at home, frightened of traveling and falling, fearful of being rejected by contemporaries and others in the community who may have difficulty in coping with the handicapped.

While listening to the patients and families and giving support to their feelings, I explore their perceptions of how the visual loss has affected their lives. Together, we see how they have been able to cope with previous losses. By sorting out the problems and finding old or new ways to deal with them, the situation becomes more manageable.

At this point, the patient may then be able to focus his attention on utilizing his remaining vision, possibly with low vision aids. Such information about the patient will then be shared with the referring doctor, (with the patient's consent). Other assistance besides aids may be indicated, including ongoing individual or family counseling, exploring new interests, brief or ongoing instruction in daily living skills, or consultation with or help from community resources. These might include senior citizen centers, housekeepers, housing facilities, volunteers, etc. The case of Mr. A. clearly illustrates the impact a rehabilitation team can have.

Mr. A. was referred to me by a Lighthouse Low Vision doctor because the patient was receiving no benefit from optical aids. Depressed and withdrawn, Mr. A. allowed his daughter to respond to my questions. I learned about Mr. A.'s situation as follows:

An 80-year-old married, retired salesman, Mr. A. had been a spirited, sociable man who had enjoyed reading the paper, driving his car and visiting with friends and family prior to the visual loss. He was described by his daughter as moody and argumentative, a stay-at-home now, who let his wife "take over" for him. The daughter felt that Mrs. A, despite her own illness, was overprotective and adding to Mr. A.'s dependency.

I asked whether Mrs. A could attend a session, and Mr. A was emphatically against this idea, stating that she was ill and he did not want to add to her burden. Eventually, I was able to draw Mr. A out so that he began to speak for himself and finally came

in alone (when transportation was arranged). We were able to deal with his fears and misconceptions about visual loss and other ways in which the loss was affecting him. He could not, for instance cut his toenails and was humiliated to ask his wife to help with this. He was reluctant to travel on public transportation so as to visit his friends, as he would need to ask for assistance in getting there as well. Since he would not go out, he could not discuss his problems with friends and would not burden his wife and family any further. (It should be noted here that since Mr. A was depressed and remaining at home, he did not need a magnifier to read with--he had no interest in reading now--and sunglasses suggested by Low Vision were unnecessary at this point).

As I was encouraging Mr. A to talk about all of this and about how he had coped with previous crises, he was able to unburden himself, air his feelings about this and other losses and take stock of his strengths. In feeling more capable himself, he was more amenable to continued suggestions for alternatives to his perceiving partial vision as a total disability. He was able to use brief instruction from the Rehabilitation Department in cutting his nails, and accepted my advice to ask others for help in the community so that he could use public transportation and resume his social activities, thereby regaining some pleasure in his life. In addition, Mr. A obtained some of the low vision aids which he had previously refused and was now able to use them to enhance his life.

Not all patients can be helped in the way that Mr. A. was. There are some aspects of aging and some losses which cannot be compensated for in life, such as the loss of a spouse, family or friends, or a substantial drop in income from an unplanned or early retirement. However, for the person who is going through this process, some help may be available to alter and enhance the person's functioning which may then enable him to "carry on" using his full potential.

Without the impact of the team of helping professionals available to Mr. A, he might have been one of those people who gave up on himself and whom society also dismissed.

Norma Simons, MSW, ACSW
Social Services

October 27, 1978

THE OLDER ADULT - LEISURE - VISION LOSS

The increasing number of older adults in our society has an affect on the kinds of services we must provide. There are needs for satisfying recreational experiences that enable the individual to relax and have fun and be exposed to growth developing situations. The roles forced on older adults in our society make it especially important for them to have opportunities to socialize with others their own age, learn or relearn skills, and be part of an environment where they are accepted as worthwhile and useful individuals. For those older adults that are visually impaired, recreation must provide a means whereby they can maintain their self-esteem while being encouraged to accept responsibility and increase their independence.

Visually impaired or fully sighted, older adults who are retired or semi-retired and are freed from the responsibilities of work and raising children, find they have greater amounts of leisure time within their life styles. In many cases, this time becomes overwhelming to them and they begin to question how they can fill this time element. This additional time is not a problem to those older adults who have planned or have had pre-retirement counseling. They have some idea about how leisure can be meaningful to them and with this attitude leisure has a very positive reinforcing effect on them physically, psychologically and emotionally.

The use of leisure time can become more critical as an individual begins to lose sight. Older adults now begin to feel that since there is a visual loss, they can no longer participate in leisure activities. While it may be true that they can't participate in some activities such as tennis, other sighted older adults may be limited as well because of physical problems. The important fact to remember is that there may be many other activities an older adult has pursued in a lifetime and can continue to enjoy. Therefore, there are two major problems, namely, an overwhelming amount of free time, coupled with visual loss. Consequently, those older adults who lack a positive attitude toward leisure, have a weakened self-image, or who feel that they can no longer "accomplish" because they are visually impaired, possess negative feelings toward leisure time which can induce boredom, depression, lethargy and in some cases, despondency.

The question I ask you, as professionals, is where does the process of help concerning leisure begin? There is a simple process that can take place in the doctor's office to help the older adults think about their daily routines and bring about an understanding on the part of both the doctor and the patient about the prescription of appropriate lenses. This dialogue between doctor and patient does not have to be complex or lengthy. It should become additional history, more

specifically - A Leisure History. From this Leisure History, (a survey of leisure activity) the doctor will learn that many individuals play bridge, attend socials, are active in church affairs, volunteer, fish, enjoy boating, do needlework, bowl, etc. Now you have some idea as to the type of activities they pursue and that they might need more than one type of lens for their leisure activities. For example, a bridge player would need three basic focal points in order to play. The need to focus on cards in the hand at a distance of about 12-18 inches, the need to focus on the "dummy hand" across the table, a distance of about 2-2½ feet, and the need to focus on the individuals sitting around the bridge table. Therefore, in prescribing lenses and aids, you should take into consideration the "special need" of the individual and of the task. From what we have learned, the following are some types of activities older adults can perform and/or pursue. Bowling, canvas and leather workshops, card playing, ceramics, music, linguistic activities, (poetry, literature, languages, creative writing) drama, dance, horticulture and gardening, needlecraft workshops, macrame, swimming, table games, (checkers, chess, scrabble) sailing, fishing, travel to theater, restaurants and concerts. Also, vacation travel is very important to many older adults and you may want to consider appropriate telescopic lenses in order that they may continue the pleasures of sightseeing. Individuals interested in music, (chorus, music appreciation, music theory or learning an instrument) can use large print music. For individuals who wish to continue playing table games, (chess, checkers, scrabble, etc.) game boards are available with contrasting colors, dark and light. For card players, various kinds of large print playing cards are used. For individuals who enjoy needlework, the selection of an appropriate canvas is important, plus instruction in various techniques, needles or latchet hooks for tapestries and rugs. If color is a factor, individuals can acquire help from friends or relatives for separating colors of yarn or outlining canvases. For sewing, guides can be used to help individuals sew straight. These are just some ideas you can impart to your patient.

In closing, one very important item that has not been discussed, although we have discussed skill level learning and attitude, is the socialization process. With a little probing and a little understanding of the importance of leisure to older adults, your professionalism can help them continue to be active.

It is important to note that only five percent of the older adults participate in senior centers, nationally. Where are the other ninety-five percent? They can be living alone or pursuing leisure activities with families or friends. Therefore, you can't assume that senior centers programs are providing the environment for socialization and leisure services to the majority of older adults. There are other agencies, community centers, Y's, adult education programs that you can refer your patient to in the community. Older adults can capitalize on their past experiences and together with your help by

prescribing the appropriate lenses and with modification and encouragement, they can relearn old skills and acquire new ones. Now, they will leave your office realizing they can continue to be involved physically and socially as contributing members of their community.

Kenneth E. Phillips, M.A.
Director
Recreation and Cultural Services

THE OLDER PATIENT WITH MACULAR DEGENERATION

MOBILITY: How to assist your patient with mobility.

As far as the ability to move through the environment is concerned, the older patient with macular degeneration may have a loss with minimal effects. Because macular degeneration involves only the central field, leaving the peripheral field intact, the patient may be taught to use the side vision to travel efficiently.

However, if your first contact with the patient who has macular degeneration takes place within an indoor environment such as an office or waiting room, there is some information in regard to safely guiding a person which may put both you and your patient at ease. Besides the fact that (he or she) may be very pre-occupied with fears over his (or her) visual condition, the patient may be totally unfamiliar with your office setting. Maneuvering from the waiting room to the doctor's office may be a problem, the difficulty of which will depend on such things as room illumination, furniture-wall-floor color contrast, as well as the degree of macular degeneration present. To facilitate movement, one can ask the simple question of the patient; "Would you like to follow me, or would you like to take my arm?" If the person chooses to take assistance, you can merely tap their arm lightly with your elbow. I always say, "Hold my arm like a glass," which automatically describes the proper gripping position to the person, and puts him in a safe following position one step behind the guide. If the move from the waiting room to office involves a narrow space, the guide can move his gripped arm to his back, allowing the patient to step behind him, and both to pass through single file. Doors require a verbal description of which way the door opens, and toward what side of the body. Information such as "This door opens toward us on our left" informs the patient that he will need his left hand free to catch the door as he and his guide pass through it. In initially offering your arm to guide the person, you can anticipate this door opening and position yourself on the side of the person that requires no switch. Once the destination is reached, it is advisable to place the patient's hand on the back of the chair he'll be seated in during the exam. He can then seat himself.

The indoor unfamiliar environment may sometimes present problems to the patient with macular degeneration, particularly if the lighting is not good. Therefore, the need may arise for these human guide techniques.

Glare is a factor that might affect the person's ability to discern form. The light from the sun hitting the retinal cells that are still intact may diminish their working ability. Sometimes the sun visor or visorlette is an effective aid. Other times the person may choose a certain type of sunglass found to be useful in cutting down glare but allowing a sufficient amount of light to be transmitted. These are quite effective in cutting out sidewalk glare and the glare from highly reflective surfaces. The choice of sunwear is again one of individual preference.

Above all, one should remember that the degree of mobility the older adult with macular degeneration is able to undertake will depend upon the individual, any other problems he may have, and his ability to adapt to new life conditions.

Frances Kotkov, M.S.
Mobility Specialist
Orientation and Mobility Department

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LOW VISION SYMPOSIUM
THE OLDER PATIENT WITH MACULAR DEGENERATION

Rehabilitation: Adaptations for Daily Living Tasks

You know the medical aspects and applications of macular degeneration and have heard the casework and Low Vision procedure usually necessary to get a patient ready to receive from a minimum to a maximum amount of instruction depending on their needs. Up to now the patient has been mostly talking, now it is time to get down to the bottom line--the practical tasks of daily living skills.

For Rehabilitation, the instructor or Low Vision specialist of these daily living skills is the practitioner. It is this person who finds out the patient's previous lifestyle and habits and adapts current ways of coping and performing to concur. People don't change nor do they want to change. A low vision patient at this Agency just wanted to be able to prepare her breakfast of cooked cereal every morning. She was an early riser and didn't want to wait till her help came in for her breakfast. The remainder of her day, she had worked out to her satisfaction and she was happy with the way things were and so she was taught to make cooked cereal only. But when some change is necessary it must be practical, functional and relevant. For example, it is not necessary to put one's head practically in the oven to light the pilot when an electric oven-broiler can be the answer. Or when a patient complains that when eating, she knocks over the glass, coffee cup or mug when reaching for it only to discover that she uses white dishes on a white table cloth. Because now color contrast is most important and white dishes on a dark table cloth or the reverse would help eliminate some of the problem. But additional help in learning how to reach more gingerly and slowly for the cup may also be to relieve frustration and anger. Another perplexing problem can be the pouring of liquids, especially boiling water which has no color. There are several methods that can and do work: (1) always pour in the sink where spilling will not be a problem, (2) listen carefully as you pour into a cup or glass (it does make a sound): as you continue to pour, the sound lessens and when you hear no sound, stop. You have come to about 1/2 to 3/4 of an inch from the top of the container. Another method is to put your hand around a container and feel the heat rise as the hot liquid is poured. Suggest to your patients that they practice one or both of these techniques until they become adept.

Then there is the patient who won't or can't use the oven because the temperature dial is impossible to see. You can

instruct the family to help them to locate 350 degree on the dial without having to really see it or even have the dial marked. On my stove the pointed indicator is at 12 o'clock when off, 7 o'clock for 350 degree and 4 o'clock for 500 degree or broil. Many people complain they can't see the "open this side" on a milk or juice carton. Usually this side has perforated sides near the spout which sometimes can be felt tactually. But there is even an easier method which is foolproof. Every carton has only one seam on one of the four corners and it always opens on the opposite side. Now I, who can only read with my L.V. aids, don't always have them handy, never bother to look visually any more when working in the kitchen and find it necessary to do one or both of these operations. But it is important to remind your patients that they can use many aids on neck cords or that several aids could be kept available in particular places i.e., kitchen, near telephones, etc. There are many other accommodations a person can find helpful: (1) Counter lighting in kitchen as well as oven head fixtures, (2) Marking door knobs on kitchen cabinet with dabs of bright colored paint, (3) Door key, if two keys are similar, mark one, and if opening door is a problem carry a small purse size flashlight, (4) Telephoning: use a large print dial and have good lighting near the phone (for some a Princess phone might be helpful), (5) Writing: use bold lined paper which can either be used by itself or can be put under one's own stationery and with a felt tip pen, one will find writing and reading back one's own writing easier, (6) Address books: again use felt tip pen, outline your addresses and telephone numbers or use a file box and cards (one card per person), (7) Identification of clothes: Women have less problems than men. Usually fabrics and textures are different. A collar, a pocket, or a belt can identify a specific piece of clothing. But identify a man's navy suit from a black one can be a big problem (even for fully sighted men). I usually suggest a piece of cardboard in the breast pocket of one will help but remember that the trousers and jackets should always be hung on the same hanger. As for men's shoes it's quite easy -never purchase two pairs alike i.e., wing tip, mocassin, plain toe, etc.

Probably one of the most important factors to remember that with decreasing or decreased vision one must be exceptionally neat and orderly. As long as household items, clothes, etc. are put away immediately and in the same place, everyday living can be more pleasant and less frustrating. Of course training one's family not to move things around is extremely important

and a must. There are many times simple everyday tasks can be more easily accomplished completely tactually but some of your patients might become frightened with such methods but I believe that eventually they will automatically do them unconsciously.

Most techniques and/or adaptations do not have to be profound nor even earth shattering. There is no magic just plain common sense. I have suggested to staff that they remember the "W W" principle - Whatever Works. And that we should also remember that there is no right or wrong way to do anything as long as the patient cannot get hurt and you are aware of the patient's daily living activities. Since many patients are older adults, chances are that the decreasing vision has been rather slow and each individual has consciously or unconsciously adapted their own method for easier functioning. Watch and listen to them, we can learn from them. And that's what I believe rehabilitation should be all about.

Phyllis Levy, B.A.
Supervisor of Community Rehabilitation Teaching
Rehabilitation/Education Department
10/24/78

VW:T1

WORKSHOP 4

2 hours 7th floor

THE CHILD WITH LOW VISION: *Emphasis on
modification of examination procedure, visual acuity
testing and special aids*

Judith E. Gurland, M.D.

Mark Greenberg, O.D.

Low Vision Clinicians

Priscilla Esposito, R.N., A.A.S.

Low Vision Nurse Assistant

SOCIAL SERVICES: *Family Counseling*

Ruth R. Brooks, M.S.W.

Social Services

EDUCATION:

Early Childhood Education for a Low Vision Child

Mary Ann Lang, M.S.

Director, Children's Educational Services

**Elementary and Secondary Education for a Low
Vision Child**

Anne L. Corn, M.Ed.

Instructor, Special Education

Teachers College, Columbia University

WORKSHOP 4 - CHILDREN'S EDUCATION CENTER, 7TH FLOOR

THE CHILD WITH LOW VISION

LOW VISION

EMPHASIS ON MODIFICATION OF EXAMINATION
PROCEDURE, VISUAL ACUITY TESTING AND SPECIAL
AIDS

Judith E. Gurland, M.D.
Pediatric Low Vision Clinician

Mark Greenberg, O.D.
Low Vision Clinician

Priscilla Esposito, R.N., A.A.S.
Low Vision Nurse Assistant

SOCIAL SERVICES

FAMILY COUNSELING

Ruth R. Brooks, M.S.W., A.C.S.W.
Social Services

EDUCATION

EARLY CHILDHOOD EDUCATION FOR A
LOW VISION CHILD

Mary Ann Lang, M.S.
Director
Children's Education Services

ELEMENTARY AND SECONDARY EDUCATION
FOR A LOW VISION CHILD

Anne L. Corn, M.Ed.
Instructor, Special Education
Teachers College
Columbia University
New York

THE NEW YORK LIGHTHOUSE LOW VISION SERVICE

1953 - 1978

The presentation of the clinical material is covered
in the Thursday papers.

FAMILY COUNSELING

The common ground between social workers and other disciplines is the study of and intervention in social situations. When a low vision specialist prescribes an aid for a child, he is intervening in a social situation referred to here as "the family." In dealing with young children, it is important to understand and establish a relationship with the family as well as the child if the treatment plan is to be successful. In most instances, the child is examined, the proper aid is prescribed and the family cooperates with its use. However in some families, the treatment plan will be sabotaged because of its implication for the present structure of the family system.

As Social Worker in the Child Development Center, it becomes one of my tasks, then, to communicate to the other disciplines information that will enhance their understanding of a child's family. Counseling is offered when it appears that the family system is dysfunctional and consequently interfering with the child's development and/or his or his family's ability to utilize the services of the agency.

This presentation will focus on the troubled and complex feelings of many parents of blind and visually handicapped children and the effects of this on a family system which may result in interference with your service to a child.

No parent is ever prepared for the advent of a handicapped child. Such a diagnosis places the family in crisis. A family's initial reaction to having a visually handicapped child has a singular theme--loss, mourning, and grief. This reaction is related to the psychological preparation for a new child during pregnancy which involves the wish and expectation for a perfect child. The mourning process, then, is actually a reaction to the loss of the healthy child. The overwhelming aspect of this situation is that there is no time for working through the "mourning" because of the demand to invest in the handicapped child as a love object.

The discrepancy between the anticipated child and the reality of the defective child represents a family crisis. It has been said that the stability of the family and that of its members hinges on a delicate pattern of emotional balance and interchange. The behavior of each member is affected by every other. The advent of a blind or visually handicapped child into a family upsets the equilibrium of family life, which in turn can affect the progress and adjustment of the child.

Whenever the family has difficulty in re-establishing this equilibrium, family counseling is indicated.

In my work I see varied reactions to the crisis of having a handicapped child. Some parents grow closer to one another while others grow apart. If there is mutual blame and re-crimination, one sees the development of excessive and unusually intense feelings of guilt and personal inadequacy. I needn't detail the strain this places on a husband-wife relationship. Parents are initially so emotionally drained that they are unable to give to each other or to their other children. The birth of a healthy infant into a family creates adjustment problems for all. Having an exceptional child places exceptional demands upon families. It can be assumed that whatever the effect, the family changes and probably cannot be reconstructed as it was before the arrival of the handicapped child.

It is into this disorganized system that the social worker intervenes. Obviously, parents are never pleased to learn that they have produced a blind or visually handicapped child. Consequently, the social worker must usually be prepared to deal with anger. It is expressed in different ways by families. In some cases, the anger they feel toward the handicapped child is acted out on the healthy child. It is not unusual to see such parents overreact verbally and physically to this child for minor infractions, such as accidentally spilling a glass of milk. The parent is usually confused by his actions toward the child and feels guilty. The worker may need to help the parent express some of this anger he is feeling about having a handicapped child. If he is reassured that it is acceptable and common to have these feelings, his need to displace his anger on the healthy child will be greatly diminished.

The more difficult situation encountered involves those families who deny these feelings and yet act out their anger directly on the visually limited child. These cases generally entail long-term work, as the child becomes the scapegoat in the family. Their anger can take the form of intensive teaching and training accompanied by physical punishment. The child is described by the parent as stubborn, lazy, or deliberately not performing in order to upset him. At the same time, the family interferes with any plan that might improve the functioning of the child. This might involve "forgetting" to replace a broken aid or refusal to allow the child to have mobility training on the grounds that it is "unsafe."

Some families tend to disengage themselves from community relationships when they have a handicapped child. Consequently, they experience themselves as isolated, devaluated and socially estranged. This can manifest itself in feelings of hostility toward the child, who is seen as the cause of their social isolation. This situation is usually the result of the child being viewed as frustrating the family aims and aspirations. In these families, the handicapped youngster is often pushed for unrealistic achievement levels so that the "family image" can be maintained.

Child care and long-term dependency concerns are concrete and realistic problems presented by many parents, particularly those of the lower economic level. Time demands on parents are greatly increased in these families where household help is not affordable. As we all know, excess long-standing fatigue places a strain on any family life. In many of these cases, the child is forced to achieve child care skills before he is ready and is punished severely if he fails. If extended family supports are not available, it is essential to provide outside help. Our agency will assume the financial responsibility for providing household help if it is indicated as part of a casework plan and not available from other sources. Family counseling will not be effective if other concrete needs are pressing.

Most families regardless of income are concerned about the long-term dependency of this child. They frequently produce a sibling because of the need to assure themselves that the handicapped child will always be taken care of. This only compounds the problem. I, therefore, choose to initiate a discussion around long-term dependency early in my work with parents if they do not themselves raise it as a problem.

The parents' feelings that surface when a handicapped child enters the family system affect the growth experience of that child. These children tend to experience different parenting than that of the so-called "normal" child. We are in an age of self-help books and Spock's BABY AND CHILD CARE is of little help to these parents. Professionals frequently accuse them of overprotecting. It is true that the tendency of most parents is to overprotect the handicapped child which results in his infantilization. In some cases, the need to overprotect is pathological and stems from the unconscious wish that the child had never been born and the desire that he die. More frequently, the reality of this situation is such that there is difficulty in knowing how much protection the child requires.

Most parents need direction from the teacher, physician, and social worker in order to determine realistic limitations for the child. When this is given, parents are usually willing to allow the child the freedom necessary for normal development.

The opposite picture is seen when parents need to deny the extent or nature of a child's handicap, and consequently he is placed in potentially harmful situations. This might occur around requesting placement for the child in a regular day care center in the afternoons when the child is just beginning to manage in a group of five with a teacher and a teacher aide. Denial will also cause parents to be uncooperative in the use of low vision aids. In one of my cases, a parent of an albino refused to have her child use the prescribed sun glasses he had been given in his low vision examination. Because of the team approach at the Lighthouse, I was aware of the appointment, the recommendation, and the fact that the child was not using the glasses. She had confined both of her children to the house and on the few occasions that the child left the home, he was subjected to pain from sunlight and cried constantly. In casework exploration, the mother was helped to recognize her own childhood difficulties related to feeling different from others. She became aware that she was transferring these feelings to her child who had no objection himself to using the glasses. When she understood this, she was able to allow the child to wear the necessary aid.

Parents in their denial of a child's condition will expose him to experimental treatment. This is the "doctor shopping" syndrome which is so frequently observed. Parents in their anxiety for a "cure" frequently do not hear the full medical explanation including the cautions and risks. In such cases, I focus with the parents on waiting for a few months before making a final decision. Time is usually not a factor and most parents are willing to delay. This enables them to reconsider, investigate further, and work through some of their feelings around the child's handicap in casework.

A frequent consequence of an inability to accept a child's limitations is seen in the parents' confused expectations for the child. These misguided expectations lead to a push-pull struggle between parent and child, and to alternating periods of expecting too much and then giving up in despair. One effect of this is to increase the negativism of the child. Consequently, it is essential for the parent to be helped to come to terms with the reality of his child's handicap in spite of the fact that it can be a painful process for both parent and social worker.

As in any life problem, a handicapped child will call forth his parents characteristic and individual ways of functioning. The better able the parents are to understand their own feelings and to act upon that understanding, the better they will be able to relate to the problem of the child's handicap. The purpose of family counseling in this agency, then, is to enable the parents to understand those complex and varied feelings that surface when they have a visually handicapped child. It is through this understanding that people gain a sense of control over their actions. Casework is an integral part of the Child Development Center. Because of the close working relationship with all disciplines here, I have an opportunity, in most cases, to intervene in the family system before patterns of relating are established. Consequently, it is possible to minimize damage to the child by helping families during his infancy. The conflicting emotions which I have discussed are never completely resolved. They surface repetitively in periods of change for the youngster. However, through counseling, they can be controlled so that during those periods of crises in the child's life, the parents are able to make decisions and provide the support that will enable him to lead a healthier, and more productive life.

Ruth Brooks, M.S.W.
Social Service

10/24/78

Early Childhood Education for a Low Vision Child

In order to help the preschool low vision child to develop following as normal a pattern as is possible, it is necessary to integrate the skills and knowledge of the Low Vision clinician and the special educator. This coordination of effort should begin as soon as a baby or young child has been identified as legally blind or visually limited to the extent that Low Vision services are warranted.

Neither of these professionals can provide appropriate services to this population in isolation. The educator cannot plan an effective educational program without detailed and continuously updated information with regard to pathology and the clinician who attempts to deal with the problem alone is greatly hampered in her ability to make significant changes in the child's general functional competence.

The case of a child who was a student at the Child Development Center of the New York Association for the Blind from 2 1/2 to 6 years of age will be used to illustrate the way in which the team approach to early intervention helped this child: (1) to reach out to explore his environment; (2) to perceive his surroundings; (3) to integrate what he was perceiving; and (4) to gain confidence in his ability to learn and function effectively.

Materials used in the educational setting and video tapes of the child will be presented.

Mary Ann Lang, M.S.
Director
Children's Educational Services

CDC

10/24/78

The School Age Low Vision Child: His Special Teacher

and His Eye Specialist

Anne L. Corn M.Ed.

Dr. Jones sees Child "A", a seventh grader with congenital bilateral cataracts in his office. As part of the examination procedure the room is darkened and the Snellen chart is projected on a screen across the room. Child "A" has a measured visual acuity of 20/60 in each eye. Glasses are prescribed to be worn as desired. Dr. Jones inquires about Child "A's" new school year and is pleased to learn that he is receiving excellent grades in advanced academic classes. Child "A" is given a 2X hand held monocular for chalkboard work.

Mrs. Smith, an orientation and mobility instructor works with Child "B" twice a week. Child "B" is extremely photophobic and at age thirteen he has not as yet crossed a neighborhood street independently. He does well in school corridors and avoiding classroom obstacles where light is controlled but Child "B" is hesitant around his school's stairways when shadows aren't consistent due to changes in natural lighting.

Mr. Hall, a resource teacher for the visually handicapped, feels that he will work with Child "C" on continued sensory training, particularly in listening skills and use of visual cues. Child "C" cannot always recognize a teacher or classmate standing three feet away. Child "C" can sustain reading most print sizes and the chalkboard when he cups one hand over his right eye and looks through the opening. In class, therefore, Child "C" functions with a restricted field and must accomplish many tasks with one hand. He is self-conscious and reluctant to use tinted lenses or optical aids. Child "C" is a "loner" in his classes and on the playground.

Children "A", "B" and "C" are actually the same child, Andy, seen in a different "light" by the different professions! We talk about looking

at a "whole" child who is more than the sum of his or her abilities and disabilities. We talk about joining a team of parents and professionals to provide services to low vision children and too often we forget to talk about the hidden dimension, the communication between professionals which is necessary before the team effort can be effective.

Forms such as the E12S eye report don't do justice to the communication effort! What occurs in the doctor's office beyond the scope of an ophthalmological or optometric examination can have a great impact on the educational planning for the child. So, too, the visual functioning of a child in the school and home must be taken into consideration for a complete evaluation.

In my discussions with doctors concerning individual children I have learned that the questions we ask each other benefit the child with whom we both work. I would like to offer the following recommendations as a foundation for the communication which must be established. They are, of course, from a teacher's point of view and I welcome your comments so that we can learn to work together rather than in parallel planes. I also wish to discuss some of the philosophies, methods and curricula found in programs for low vision children in the public schools.

1. Learn about the visual tasks required of each child in school and at home. The media explosion in schools has brought into the classroom a variety of visual presentations. One child may be using a "kiddy calculator" while another is dealing with television images or microscopes in third grade! Textbooks and the chalkboard are not always the major sources of information in the classroom. The teacher of the visually handicapped works with the regular teacher to suggest or provide materials to be used. e.g. a front screen projector. She may help the child to position himself in the class to receive visual information and to use his optical aids efficiently.

2. Ask the special teacher for the visually handicapped to write a report on the child's visual functioning. There is a common language between the professions with which teachers can express

their concerns about the child's visual needs. Teachers must take courses on the educational implications of visual impairments and can often provide in anecdotal form such information as: lighting effects on activities, fatigue factors in reading, use of optical aids, concerns about the visual condition and changes in vision observed in the classroom.

3. Learn about the variety of services in your community from educational, governmental, agency and university facilities. "Free and appropriate" educational services are now required by Public Law 94-142 for all children. Itinerant and resource programs are the most common programs for low vision children attending public schools; they are described in the booklet which I will distribute, "When You Have a Visually Handicapped Child in Your Classroom: Suggestions for Teachers." Multiply handicapped children receive educational services in a variety of settings following a complete assessment of the needs of the child, also in accordance with P.L. 94-142. At local meetings of professional interest groups you may be interested in inviting a teacher of the visually handicapped to speak about available services.

4. Refer parents to special educators as early as possible. Only after an educational assessment can decisions be made as to the type or amount of special services required by the child. For some children not receiving services can be far more stigmatizing than being "labeled" by the visual problem with which he or she must live. One of the most important roles of the resource or itinerant teacher is to provide an understanding atmosphere in which the child can come to grips with the significance of the visual impairment in his or her life. At times guidance counselors, social workers and other professionals will be of assistance to the family for counseling.

5. Inform the teacher of goals which you may have for prescriptions. While you may start a child with a 2X monocular for its wider field, the child may not see its value if in school he cannot read algebra equations on the chalkboard.

6. I would like to see teachers of the visually handicapped believe that the choice of reading medium is an educational decision (unless, of course, if there is a medical restriction on the use of the eyes.) Teachers are prepared to teach reading to low vision children; they know the research studies on print size, combined modes of information input, availability and reading speeds for large print, braille and recorded texts. At Teachers College they are also given an understanding of the beginning reading process with optical aids. With the information provided by the eye specialist, an assessment of visual functioning and with an understanding of the child's educational needs, the teacher can determine "appropriate" modes of reading.

7. When there are questions about the usefulness of a child's vision consult with the special teacher. He or she observes the child in a variety of settings where use of vision can be demonstrated for that particular child. Effort and motivation needed to use "minimal" vision must also be taken into consideration.

8. Talking with the child about his visual impairment cannot be ascribed to one profession or solely to the parents. While an older student can sometimes more easily verbalize questions and concerns, the younger child needs to formulate in his own mind the responses to questions of demanding classmates, e.g. "How come your left eye looks so funny?" or "Why can't you see the chalkboard when you're that close?"

9. Get to know some adults who have low vision, particularly if you feel any discomfort in working with children who cannot have a "cure." There is much to be learned by listening to coping strategies of those who have met the visual demands of school, travel and work.

10. Learn about the special skills which your child will be learning. You may have suggestions to offer for the use of vision during specific tasks e.g. does a child with nystagmus seem to have better acuity with a head tilt in learning to write cursive?

While you are interested in the current education of the child, take an interest in educational planning for the future. Prognosis and changes in visual status need to be considered as well as the knowledge of changing educational programs to meet the child's

educational and psychological needs. "Don't treat him specially." can be wrongly interpreted as "Don't accept special education." Informing parents of a child's eventual blindness may have a more tragic impact if they believe the child will need to leave home for an education.

Teachers and eye specialists must communicate to meet the needs of the child. Both professions co-function on the child and his family. Andy, our "lettered" child deserves a coordinated and well informed team to help him to compete educationally and socially with his peers.

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- *Sloan, Louise, & Habel, Adelaide. Problems in Prescribing Reading Aids for Partially Sighted Children, American Journal of Ophthalmology, 75(6), 1023-1035.

*highly recommended

SPECIAL PROGRAMS

Workshop on Optics of Low Vision Aids

This workshop will consist of short lectures and demonstrations on optics of low vision aids. It will be presented at intervals during the day. Times to be announced.

Robert Rosenberg, O.D.

Chairman, Basic Science Course

State University of New York

State College of Optometry

Workshop on Problems Related to Administration of a Low Vision Service

By appointment.

Clare M. Hood, R.N., M.A.

Administrative Director

New York Lighthouse Low Vision Service

Consultation Service

Low Vision Service, 6th floor

All Lighthouse staff members will be available by special arrangement for conferences related to your special need.

Saturday, November 11

**New York Hilton
Mercury Ballroom**

8:00 a.m.

Coffee and Danish

Challenges of Tomorrow

The purpose of this session is to stimulate interest in low vision research by informing clinicians of the state of the art and by demonstrating areas in which the clinician can participate.

8:45-10 a.m.

Moderator: Wesley D. Sprague

8:45-9:15 a.m.

Health Care Programs

Alden N. Haffner O.D., Ph.D.

Associate Chancellor for

Health Services

State University of New York

9:15-9:45 a.m.

Research Issues in Low Vision

Israel Goldberg, Ph.D.

National Eye Institute

Washington, D.C.

9:45-10:00 a.m.

Questions

10:00-10:15 a.m.

Coffee

10:15-12 noon

Moderator: Arthur E. Gillman, M.D.

Director, Research Development

The New York Lighthouse

10:20-10:50 a.m.

Research in Retinal Function Tests

Irwin M. Siegel, Ph.D.

Professor, Research Ophthalmology

New York University

10:50-11:20

Research in Visual Acuity Tests

August Colenbrander, M.D.

Co-Medical Director, Low Vision Service

Pacific Medical Center

San Francisco, California

11:20-12 noon

Research Data on Role of Refraction in Vision

Deprivation

Indra Mohindra, O.D.

Richard Held's Laboratory

Massachusetts Institute of Technology

12:00-12:30 p.m.

Application of Optical Science to Development of

New Devices

J. Warren Blaker, Ph.D.

Optical Physicist

12:30-12:45 p.m.

Questions

12:45-1:00 p.m.

Closing Remarks

Eleanor E. Faye, M.D.

Wesley D. Sprague

ALDEN N. HAFFNER, O.D., Ph.D.

Associate Chancellor for Health Sciences
State University of New York



State University of New York
State University Plaza
Albany, New York 12246

Associate Chancellor for
Health Sciences

Presented at

The 25th Anniversary Symposium
of the Lighthouse
The New York Association of the Blind
The Hilton Hotel
New York City
November 11, 1978

LOW VISION IN HEALTH CARE PROGRAMS

Alden N. Haffner, O.D., Ph.D.
Associate Chancellor for
Health Sciences
State University of New York

America slowly, even painfully, is moving toward a program of national health care entitlement secured by a federal program of compulsory social insurance. While the mood of the nation is pervaded by "Proposition 13" and a variety of other fiscal constraints, the end result is inevitable because it is a needed social instrument to promote human betterment. America is retarded in its social development in this regard and it is the last of the great western powers to achieve a program of national health care. The history of the past half century will not look kindly upon the leadership infrastructure with regard to health care. The retardation of the development of a national program of health care will be viewed as a denial of human need though the country had the resources. It was the late Paul VI who said, "No one is justified in keeping for his exclusive use what he does not need when others lack necessities." Perhaps we should stop speaking about health care as a universal right and, rather, identify it as a universal need.

The secretary of the Department of Health, Education and Welfare has recently enunciated for the government its principles upon which a program of national health insurance will be fashioned. It is to be a cost conscious and cost contained effort which will be incrementally introduced over an extended period of time. Factors of catastrophic illness which tend to decimate the financial viability of families are to be the prime targets for the program over and above the existence of basic hospitalization coverage.

The question for this symposium is where in the "scheme of things" does low vision diagnosis and therapy exist or where should it exist. It is a dilemma that is not easily resolved. The dimensions of the problem stem from a "should we or shouldn't we" mentality. Specifically, is low vision diagnosis and therapy a part of routine health assessment and therapy or is it part of specialized care. If it is the latter, should its costs be viewed as "normal" expense or should the costs be placed in a so-called major medical category where they approach catastrophic proportions.

It seems to me, however, that we should not look for a solution to the dilemma. The solution is at hand. In the preparation of this paper, I surveyed forty third-party insurers. This is over and above Medicare. All of the forty cover low vision care and therapy under major medical insurance but not under routine medical/surgical coverage. Medicare provides no coverage. Medicaid, in several states, provides for the coverage. Thus, the decision has been made. Low vision diagnosis and therapy are encompassed in the specialized high risk coverage of major medical insurance. Its characteristics are that it has a relatively low incidence and its costs are relatively high. That is the reason for major medical insurance. To counter that tide, it seems to me, would be counterproductive.

While the secretary of HEW has suggested that incremental growth of government sponsored health care coverage is the methodology for the development of national health insurance, he did enunciate that catastrophic (high cost) protection should be the next order of business. We now have an obligation to see to it that low vision diagnosis and therapy are included as coverage in the next phase of growth in this subject area.

But the case must be made. And the health workers who devote their professional lives to this concern have a substantial obligation to construct the "case" in order to convince the planners and policy makers that low vision diagnosis and therapy should, by definition and by identification, be included in the program of catastrophic coverage. The initiation and development of a task force or commission to prepare the case, to assemble the data, to rationalize the arguments and to propose the framing of the public policy--all of this should go forward without undue delay. Of major concern immediately should be the assembling of a broad coalition of concerned and high level persons who represent the constituencies and the societal forces necessary effectively to bring about a fundamental public policy change. Even the secretary of the Department of Health, Education and Welfare should be asked to nominate a person to the task force or commission to represent the interests of the federal government.

While the attendant costs will have to be borne for the work of the commission, those costs could come from the various elements of the low vision constituencies. But, preferably, it should come from a philanthropic foundation. It seems to me that a case proposal leading to a grant to support the essential work of the commission or task force can relatively easily be constructed for the foundations to consider.

Of key importance will be the sponsorship of the commission. For this undertaking, I rather strongly favor the National Health Council. That splendid and well recognized agency in health advocacy represents a rather broad coalition of health related organizations. A proposal to the National Health Council backed up by a proposal for external funding would be an appropriate route to take. National Health Council sponsorship of the study assures an advocacy and a standing that will have meaning and impact in terms of the recommendations which will be made.

For the remaining portion of this paper, I would like to discuss some of the discreet issues which need study and which must be addressed by the study. Indeed, there will be a need to define realistic policy options for the government to evaluate.

1. What is the level of incidence of low vision in the population? That question must be answered in the most definitive manner. An assessment of its impact---socially, economically, occupationally, and educationally---remains to be made. That we are facing an era of an increasingly older population can only be translated to mean a higher incidence and increased total numbers. It has been said that the current estimate of numbers is about ten million persons who are significantly visually impaired and who are not in the legally blind category.

2. Another policy issue has been prompted by the foregoing statement. Legally blind persons have had, over several decades, their services and affairs administered by a separate agency concerned solely with the blind. This, of course, has come about as a result of cultural and social movements concerned with the care of this impacted population group. But the question must now be raised concerning the potential for the consolidation of service functions viewed in a health context and proposed for inclusion in a program of national health entitlement. This critical issue of separateness or inclusion is one that must be addressed and, undoubtedly, will cause serious policy controversy.

3. Comparative data will have to be carefully and skillfully presented. This country views cancer, stroke, diabetes and other major health hazards from a therapeutic model somewhat differently from that of the visually impaired. Comparisons of the incidences of the visually impaired at different age levels and in different geographies with those health problems named above, and indeed others, should be done. Not only must their age-specific numbers be recited but, as well, comparative data relative to their impacts---socially, economically, occupationally and educationally---should be amassed for fairly obvious reasons.

4. Another issue which undoubtedly will be raised and for which policy options should be developed relates to the therapeutic sites. Should low vision diagnosis and therapy be offered at institutionally based facilities--hospitals and clinics--or should there be a broader definition of the therapeutic role of the private practitioner. To what extent are social services and rehabilitation important enough to make the determination for the former (hospitals and clinics) to the exclusion of the latter (private offices). The question will have to be answered in part by realistic needs for geographic distribution and availability of specialized services. Cost benefit analyses of all options proposed need careful evaluation.

5. The issue of manpower considerations are vital to this undertaking. Both optometrists and ophthalmologists have unique roles to play and their contributions will be meaningful to the success of this program undertaking. That does not, per se, mean all optometrists nor all ophthalmologists. It does mean those clinicians whose background expertise qualify them for undertaking this area of professional endeavor. But manpower considerations also imply the specially trained public health nurse, the social worker and rehabilitation personnel of various specialties. But to be quite candid, I am most concerned about the optometry-ophthalmology interaction. The Low Vision Clinic of the Lighthouse is the keen example of mutual professional respect operating with mutual professional interaction. But one word of caution is in order. Should the optometry-ophthalmology interaction become a point of intense controversy vis a vis the provision of low vision diagnosis and therapy in a program of national health entitlement, then there is the considerable potential for the health planners in government to stay clear of the controversy that should be a tragedy for those millions who would have been aided by inclusion.

6. Clearly, one of the most crucial issues to be addressed is that of costs. What will such a program of entitlement cost government particularly as the incidence numbers rise? Pure cost estimates will not be sufficient to make the case. Additionally, what will be needed are comparative costs for other programs of care, relative social benefits and importance and the extent to which costs currently carried by other public and private sectors will be shifted to this federal endeavor. Additionally, costs will have to be cast in a social context in order to get a realistic picture of the impact of the inclusion of low vision diagnosis and therapy in a national program of health care entitlement.

It has been a delight and an honor to have the opportunity to address these remarks on this auspicious occasion. Twenty five years of progress in low vision care has spelled remarkable progress for persons with such special needs. But it was the foresight and the leadership of the Lighthouse that created the opportunity for clinical, professional and social progress. More than anything else, this symposium celebrates, then, the wisdom of that foresight and the dedication of that leadership without which qualities the progress would have been impossible. May the next twenty five spell the continued fulfillment of the aspirations of those whose dreaming so exquisitely look to tomorrow's human needs and social progress.

ISRAEL A. GOLDBERG, Ph.D.

Retinal and Choroidal Diseases
National Eye Institute
Department of Health, Education and Welfare
Bethesda, MD

RESEARCH GRANT APPLICATIONS RELATIVE TO THE
MANAGEMENT OF SEVERE VISUAL IMPAIRMENT
SOUGHT BY THE NATIONAL EYE INSTITUTE

ANNOUNCEMENT

The National Eye Institute is interested in the support of laboratory and clinical research which will have an impact on the management of severe visual impairments. Applications may include scientific investigations directed at improved diagnostic characterization of impairment, disability, or capability; scientific investigations to evaluate new, as well as current, techniques for the management of the disabilities of individuals with severely compromised visual function; and scientific investigations to evaluate new techniques for improving visual, visual-motor, and mobility performance. Studies which have the potential for increasing our knowledge of visual function in health and disease or which involve the application and evaluation of laboratory methodologies and findings in the clinical research setting are particularly desired.

A conventional definition of severe visual impairment is the inability to read ordinary newsprint using both eyes even with glasses. The United States population of individuals with such disability has been estimated as approximately 1.5 million persons (Vision Research - A National Plan: 1978-1982, DHEW Publication NIH 78-1258). The principal causes are the retinal diseases (e.g. macular degeneration, diabetic retinopathy, retinitis pigmentosa, retrolental fibroplasia), glaucoma, cataract, diseases of the optic nerve or muscles, and corneal disorders. In addition, many other pathological conditions, such as multiple sclerosis and stroke, and trauma due to accident, may also have as their end result disabling visual loss short of total blindness.

The National Advisory Eye Council in its recent report Vision Research - A National Plan identified the need for additional research directed toward objectives in visual rehabilitation. In addition, the workshop on "Research Opportunities Relevant to the Management of Severe Visual Impairment," sponsored by the National Eye Institute in June 1977, focused on recent advances and current needs in the areas of rehabilitation of the low-vision individual. Examples of research opportunities identified by the Council and the workshop participants were:

1. Better Diagnosis of Visual-System Impairments and Improved Characterization of Residual Vision. Understanding of the

This announcement is made under authority of Section 451 of the Public Health Service Act as amended (42 USC, Ch. 6A, subch. III). National Eye Institute research grants are administered in accord with law, regulation, and policy as described in the Public Health Service Grants Policy Statement, October 1, 1976 [DHEW Publication (OS) 77-50,000] and Addendum [DHEW Publication (OS) 77-50,000-A].

functional losses that result from given types of anomalies at specific loci should permit substantial progress in developing specific measures to aid the visually impaired. Suitable batteries of tests, in addition to routine Snellen acuity and visual field tests, need to be designed and validated to properly assess and measure functional vision of partially-sighted individuals.

2. Development and Evaluation of Special Devices and Techniques to Improve Visual Performance of Patients with Specific Optical or Retinal Irregularities.
 - a. Studies are needed to determine the proper balance of brightness, contrast, color, and border contours to give the best possible functional vision in various eye disorders.
 - b. There is great need for research directed at improving the use of peripheral retina for patients with damage to the macula, the portion of the retina that normally makes finely-detailed vision possible.
 - c. Special contact lenses for patients with highly irregular corneas or with other severe optical distortions require development and evaluation.
 - d. Various visual-field enhancers or magnification devices need to be evaluated for specific visual impairments. Contrast, brightness, and other parameters need to be considered in these evaluations. Use of reasonably priced electronic transfer devices, such as units which incorporate closed-circuit television systems, may speed the transition from evaluation to application.
 - e. Laser-generated patterns have been used to penetrate some ocular opacities. The parameters of stimulation required to penetrate various ocular opacities (e.g. corneal scars, cataracts, vitreous hemorrhage) need to be determined.
3. Development and Clinical Trials of Special Devices and Techniques to Improve Mobility and the Performance of Jobs and Skills. Included are sight-substitution systems and various mobility aids. Of particular need is the development of task-oriented tests which are valid and reliable predictors of performance in real life demand situations. Specially constructed simulated environments may prove useful for this purpose.
4. Assessment of Visual Functions in the Infant and Young Child. Visual impairment needs to be detected at the earliest possible time if remedial therapy is to be developed that will have maximal effectiveness in preventing further visual loss during development. Improved detection awaits the availability of normative information about the development of visual capabilities and special techniques may be required for testing infant vision.

The National Eye Institute wishes to encourage further research and development on these as well as other methods and approaches for the prevention, evaluation, and management of severe visual impairment. Applications are invited from investigators in all relevant disciplines. Applications including collaboration between professionals involved in the laboratory and clinical sciences are particularly encouraged, as are those from institutions with populations of partially-sighted individuals suitable for research purposes.

National Institutes of Health peer review procedures will be followed for all responses to this announcement. Applicant must use the regular research grant application (form PHS 398) and should type at the top of the face sheet of the application "SUBMITTED IN RESPONSE TO NEI PROGRAM ANNOUNCEMENT RESEARCH RELATIVE TO SEVERE VISUAL IMPAIRMENT." The completed application should be mailed to:

Division of Research Grants
Room 240, Westwood Building
National Institutes of Health
Bethesda, Maryland 20014

where it will then be assigned for consideration and review according to the NIH referral guidelines for research grants. The scientific quality and the technical merit of all applications will be evaluated by a National Institutes of Health Study Section and by the National Advisory Eye Council. Approved applications will compete for available funds with all other approved applications assigned to the National Eye Institute. Potential applicants are encouraged to communicate with National Eye Institute staff early in the process of preparing applications.

Application receipt dates are March 1, July 1, and November 1 of each year. Applications received after any one receipt date are considered and reviewed together with those received by the next receipt date. The earliest possible award date is approximately nine months after receipt date.

Inquiries concerning this announcement may be addressed to:

Sensory and Motor Disorders of Vision
and Rehabilitation Program
Scientific Programs Branch
National Eye Institute
National Institutes of Health
Room 6A52, Building 31
Bethesda, Maryland 20014

Telephone: (301) 496-5985

ARTHUR E. GILLMAN, M.D.

Research Development
The New York Lighthouse

MODERATOR

IRWIN M. SIEGEL, Ph.D.

Professor of Research Ophthalmology
New York University Medical Center
New York

Retinal Function Testing

New Techniques for Assessing Visual Acuity

Irwin M. Siegel, Ph.D.
Professor of Research Ophthalmology
New York University Medical Center

While acuity testing by Snellen chart or its equivalent serves a useful function, it fails to explore a most important aspect of visual ability-- contrast sensitivity. Ordinarily, we ask patients to report the smallest line of high contrast letters they can appreciate. The assumption is that any larger line of letters would also be visible. This is true-- but only because the larger letters are of the same high contrast as the smaller ones. It is equivalent to a hearing test being conducted with different pitches but all of the same loudness. The ear, however, is not as sensitive to low and high pitched sounds as it is to middle range tones. And neither is the eye. In fact, testing acuity by asking a patient what the smallest line he can see on an eye chart is analogous to obtaining an audiogram with a single high pitched sound. Perception of low contrast targets subtending a large visual angle is just as vital to a human being as perceiving low pitched sounds.

New methods from the laboratory have now been modified for clinical use in order to properly measure visual perception. These tests present, by electronic or print processing means, a wide range of object sizes of varied contrast. For each pattern size, the least contrast required to perceive the target is determined. In its most sophisticated form, an electronically generated sinusoidally modulated pattern of bars is made to appear on a T.V. screen. The patient adjusts the contrast of the pattern until it just disappears. This is done for a series of bar widths. The resulting function is technically known as a contrast sensitivity curve, but could also be thought of as a "visuogram". Fine patterns (1' of arc) require high contrast for visibility and medium sized ones (10' of arc=20/200) require very little contrast. Patterns coarser than 10' unexpectedly require more contrast for visibility. Of significance is that losses of contrast at low frequencies are associated with optic nerve pathology as well as amblyopia and some forms of lenticular opacities.

Patients with poor vision are often not helped by magnification because increased image size alone may not improve resolvability. A complaint of "it's bigger, but not dark enough" is often heard from patients with low vision. It is essential to realize that acuity measures as most often performed are merely end point determinations and represent only a single datum of visual function. The complete contrast sensitivity function, as recent studies show, provides invaluable information about how the eye perceives objects, large and small. These measures may also serve as indicators of some forms of ocular pathology, especially in their early stages.

AUGUST COLENBRANDER, M.D.

Co-Medical Director
Low Vision Service
Pacific Medical Center
San Francisco, CA

INDRA MOHINDRA, O.D., M.S., F.A.A.O.

Associate Professor
New England College of Optometry

Research Assistant
Massachusetts Institute of Technology
Psychology Department

Indra Mohindra, O.D.

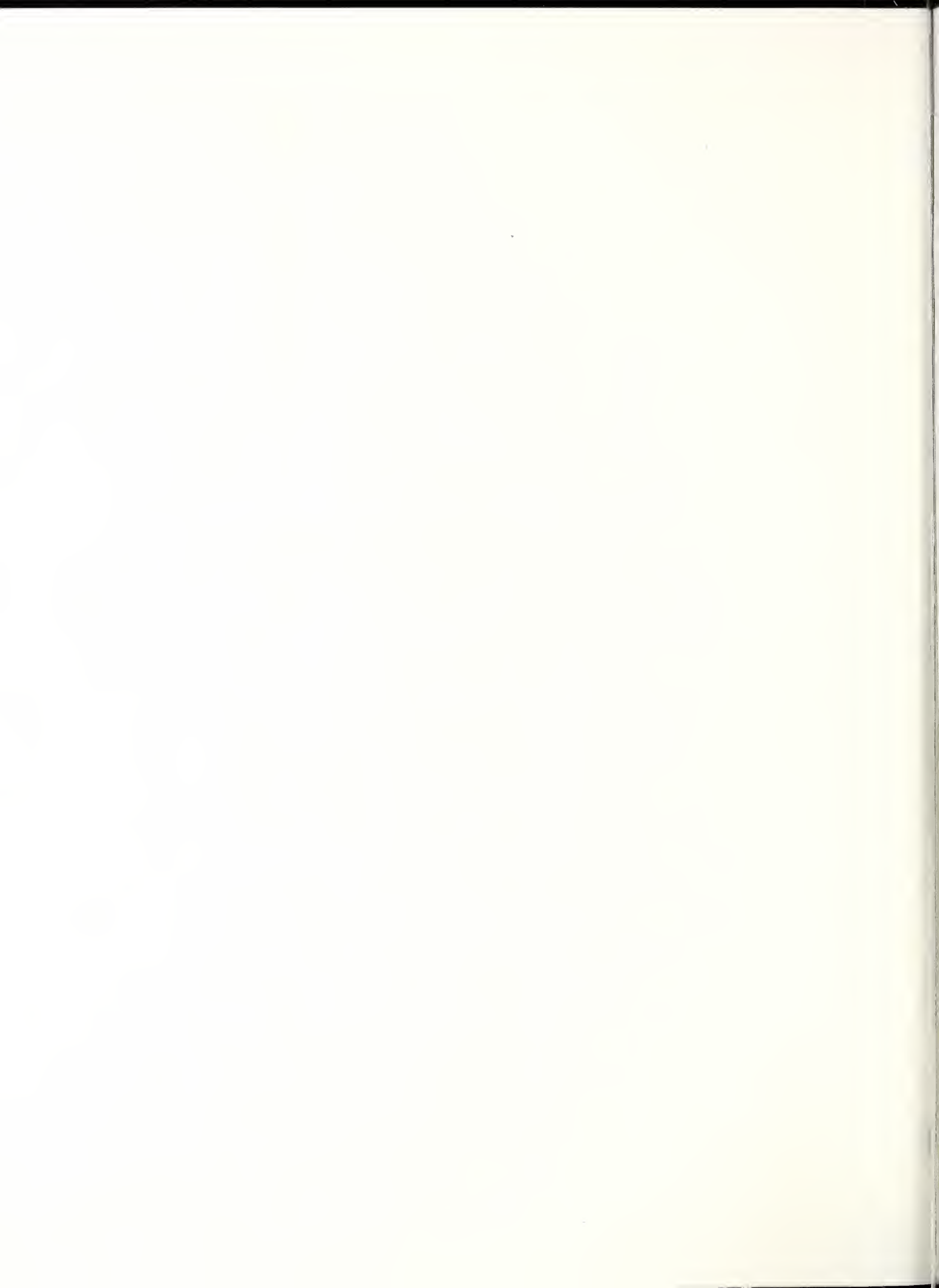
Role of Refraction in Vision Deprivation

In recent decades experiments in early sensory motor deprivation related to the visual systems of cats and monkey, have demonstrated permanent losses of visual function. In humans clinical studies have demonstrated somewhat similar vision function losses; although the critical period can be inferred retrospectively only. Some inferences on the critical period in human visual system have been shown through anatomical studies of human cadaver brains from birth to adult age.

To a certain extent, these experiments have demonstrated that the degree of the anomalous monocular and/or binocular visual percepts is related to the age of onset, intensity and duration of the anomalous sensory input during the critical period. There is, however, very little information regarding the threshold of a given deprivational element during any specific time of the sensitive period or the duration of the sensitive period, with respect to a given deprivational stimulus.

The research in our laboratory at M.I.T., headed by Professor Richard Held, who is also the Chairman of the Psychology Department, is directed towards development of the techniques required to measure visual function in infants and young children. So far we have accumulated significant normative refractive and visual acuity data during the first year of life.

I will try and present the highlights of the vision deprivation data fathered by the above researches, as it relates to visual acuity, refraction and refractive amblyopia.



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